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Mobilität von Kindern und Jugendlichen

Veränderungen zwischen 1994 und 2015

Analyse basierend auf den Mikrozensusen «Mobilität und Verkehr»

Mobilité des enfants et des adolescents

Evolution entre 1994 et 2015 - Analyse basée sur les microrecensements « mobilité et transports »

Mobilità di bambini e adolescenti

Evoluzioni dal 1994 al 2015 - Analisi basata sui microcensimenti «mobilità e trasporti»

Mobility of children and adolescents

Changes between 1994 and 2015 - Analysis based on the micro censuses «mobility and traffic».

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Mobilität von Kindern und Jugendlichen

Entwicklungen von 1994 bis 2015
Analyse basierend auf den Mikrozensen
«Mobilität und Verkehr»

Daniel Sauter
Urban Mobility Research

Im Auftrag des
Bundesamts für Strassen, ASTRA
Bereich Langsamverkehr

Mit Unterstützung des
Bundesamts für Gesundheit, BAG
& des Bundesamts für Sport, BASPO

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Abstracts

Deutsch

Die Mobilitätsmuster von Kindern und Jugendlichen sind ein wichtiger Indikator für die Lebensqualität und die Entwicklung des Verkehrsverhaltens in der Zukunft. Diese Mobilitätsmuster haben sich in den letzten 20 Jahren teilweise markant verändert. Der vorliegende Bericht beschreibt die Entwicklungen, Zusammenhänge und – soweit möglich – die Hintergründe dafür.

Die Analyse basiert auf den Mikrozensusdaten „Mobilität und Verkehr“ (MZMV) von 1994, 2000, 2005, 2010 und 2015 des Bundesamtes für Statistik und des Bundesamtes für Raumentwicklung. Einbezogen werden sowohl die Mobilitätsvoraussetzungen, z.B. die Verfügbarkeit über Velos oder Abonnemente des öffentlichen Verkehrs und die Verfügbarkeit der Haushalte über Autos, wie auch die Weglängen und die Verkehrsmittelnutzung – dargestellt nach allen Zwecken, Schul- und Freizeitwegen, Alter, Geschlecht, Landesteil und weiteren Kriterien.

Bei Kindern von 6 bis 12 Jahren hat sich über die Zeit relativ wenig verändert. Der Anteil der Elterntaxis auf Schulwegen ist nicht so hoch wie allgemein vermutet und nur vereinzelt im zweistelligen Bereich. Bei den 13- bis 15-Jährigen hat der Veloanteil in den letzten 20 Jahren deutlich abgenommen, scheint nun aber die Talsohle erreicht zu haben. Insbesondere die Mobilitätsmuster der Jugendlichen zwischen 16 und 20 Jahren haben sich markant verändert: sie machen heute viel mehr Wege mit öffentlichen Verkehrsmitteln und zu Fuss. Damit werden Wege mit dem Velo und zum Teil dem motorisierten Individualverkehr ersetzt. Sprachregional gibt es zudem grosse Unterschiede bei der Verkehrsmittelwahl. In der Romandie ist der Veloanteil z.B. bedeutend kleiner als in der Deutschschweiz. Entscheidenden Einfluss auf die Verkehrsmittelwahl haben zudem das Vorhandensein und die Qualität der Veloabstellplätze, die Verfügbarkeit über ein öV-Abonnement sowie die Anzahl Autos im Haushalt.

Die geschilderten Entwicklungen finden vor dem Hintergrund von strukturellen und gesellschaftlichen Veränderungen statt, u.a. der Zunahme der Distanzen zu Ausbildungsorten sowie dem Ausbau des öffentlichen Verkehrs, welcher ergänzt wird durch eine positive Einstellung der Kinder und Jugendlichen zu diesem Verkehrsmittel. Dies verändert nicht nur die Verkehrsmittelwahl auf Ausbildungswegen, sondern auch jene in der Freizeit.

Français

Les schémas de mobilité des enfants et des adolescents constituent un indicateur important de la qualité de vie et de l'évolution future du comportement en matière de transports. Ces habitudes ont connu des mutations parfois profondes ces 20 dernières années. Le présent rapport décrit les évolutions en jeu, les interdépendances et, dans la mesure du possible, le contexte qui les explique.

L'analyse repose sur les données du micro-recensement « Mobilité et transports » (MRMT) recueillies en 1994, 2000, 2005, 2010 et 2015 par l'Office fédéral de la statistique et l'Office fédéral du développement territorial. Ces données intègrent aussi bien les conditions préalables à la mobilité, par ex. la possession de vélos ou d'abonnements de transports publics et les voitures dont disposent les ménages, que la longueur des trajets ou l'utilisation des moyens de transport, représentées en fonction des finalités, des trajets scolaires et des déplacements de loisirs, de l'âge, du sexe, de la région et d'autres critères.

Pour les enfants de 6 à 12 ans, les choses ont relativement peu évolué avec le temps. La proportion de parents faisant office de taxis pour les trajets scolaires n'est pas aussi élevée que ce que l'on pourrait penser et n'atteint que rarement deux chiffres. Pour les 13 à 15 ans, la part du vélo a nettement diminué ces 20 dernières années, mais semble avoir dépassé le creux de la vague. Ce sont surtout les schémas de mobilité des adolescents de 16 à 20 ans qui ont considérablement évolué : ceux-ci se déplacent aujourd'hui bien plus souvent en transports publics et à pied, ce qui remplace les trajets effectués à vélo et en partie en transport individuel motorisé. Par ailleurs, il existe de grandes différences entre les régions linguistiques sur le plan du choix des moyens de transport. Ainsi, la part du vélo est nettement plus faible en Suisse romande qu'en Suisse alémanique. En outre, l'existence et la qualité des parkings pour vélos, la disponibilité d'un abonnement de TP ainsi que le nombre de voitures dans le ménage ont une influence décisive sur le choix des moyens de transport.

Les évolutions présentées interviennent dans le contexte de mutations structurelles et sociales, notamment de l'allongement des distances jusqu'aux lieux de formation ainsi que du développement des trans-

ports publics, auquel s'ajoute l'opinion favorable que les enfants et les adolescents ont vis-à-vis de ce moyen de transport. Cela modifie le choix du moyen de transport non seulement pour se rendre sur les lieux de formation, mais aussi lors des loisirs.

Italiano

Negli ultimi 20 anni i modelli di mobilità di bambini e adolescenti, importante indicatore della qualità di vita e dei comportamenti futuri in materia di trasporti, hanno subito trasformazioni talvolta profonde. Il presente rapporto ne descrive gli sviluppi, le correlazioni e, per quanto possibile, le cause.

La ricerca si basa sui dati dei *microcensimenti mobilità e trasporti (MCMT)* realizzati nel 1994, 2000, 2005, 2010 e 2015 da Ufficio federale di statistica e Ufficio federale dello sviluppo territoriale. L'analisi comprende sia i presupposti della mobilità, ad esempio la disponibilità di biciclette o di abbonamenti ai mezzi pubblici e il numero di automobili per famiglia, sia le distanze percorse e l'utilizzo dei vari mezzi di trasporto, suddivisi in base a scopo dello spostamento, tipologia (scuola/formazione o tempo libero), età, sesso, area geografica e altri criteri.

Nella fascia di età 6–12 anni la situazione è rimasta pressoché invariata nel tempo. Il fenomeno dei cosiddetti genitori-taxi che accompagnano i bambini a scuola è meno diffuso di quanto si possa pensare e solo in casi isolati raggiunge percentuali a due cifre. Il netto calo nell'uso della bicicletta da parte dei ragazzi di età compresa tra i 13 e i 15 anni registrato nell'ultimo ventennio sembra aver toccato il punto più basso. Un cambiamento radicale si riscontra soprattutto nella fascia 16–20 anni, che oggi preferisce di gran lunga spostarsi con i mezzi pubblici o a piedi anziché in bici e, in parte, optando per il traffico motorizzato privato (TMP). Si notano inoltre marcate differenze nella scelta del mezzo tra le regioni linguistiche: nella Svizzera romanda la percentuale di chi sceglie la bici è, ad esempio, molto minore rispetto alla Svizzera tedesca. A incidere sostanzialmente sono la disponibilità e qualità dei parcheggi per le biciclette, il possesso di un abbonamento di trasporto pubblico e il numero di automobili in famiglia.

Tali tendenze si collocano in un mutato contesto strutturale e sociale, caratterizzato da maggiori distanze percorse per esigenze formative, ampliamento della rete di trasporto pubblico e crescente propensione di bambini e adolescenti per i mezzi pubblici. Ciò influisce sui comportamenti in fatto di mobilità non solo nel tragitto casa-scuola, ma anche nel tempo libero.

English

The mobility patterns of children and adolescents are important indicators of quality of life and future trends in transport behaviour. Some of those patterns have changed significantly in the past 20 years. This report describes the trends, links and – where possible – underlying reasons therefor.

The analysis is based on the data obtained from the Mobility and Transport microcensuses (MTMC) "Mobility and Traffic" microcensuses conducted in 1994, 2000, 2005, 2010 and 2015 by the Swiss Federal Statistical Office and the Swiss Office for Spatial Development. It covers mobility conditions (e.g. the availability of bicycles and public transport passes, whether or not the household has access to cars), the distance to travel and use of means of transportation, broken down by all purposes, education- and leisure-related travel, age, sex, part of the country and other criteria.

For children aged 6 to 12, there have been relatively few changes over time. The proportion of parents driving their children to school is not as high as generally assumed and only rarely in the double-digit realm. The proportion of adolescents aged 13 to 15 using a bicycle has fallen significantly in the past 20 years, but seems to have bottomed out. The mobility patterns of young people aged 16 to 20 in particular have changed markedly: they presently make far more trips using public transport and on foot, replacing trips previously made by bicycle and in some cases by private motor vehicle. In addition, there are major differences in the choice of mode of locomotion between language regions. For example, the proportion of those traveling by bicycle is smaller in French-speaking than in German-speaking Switzerland. In addition, the availability and quality of bicycle parking spots, the availability of a public transport pass and the number of cars in the household have a decisive impact on the choice of mode of locomotion.

The changes indicated have arisen against a backdrop of structural and social change, including an increase in the distance to educational facilities and the expansion of public transport, which is being supplemented by a positive attitude of children and young people towards this mode of transport. The result is a shift in the choice of mode of locomotion not only for education-related travel, but also for leisure-related travel.

Summary

Introduction

The mobility patterns of children and adolescents are important indicators of quality of life and future trends in transport behaviour. Some of those patterns have changed significantly in the past 20 years. This report analyses trends, links and – where possible – the underlying reasons for the changes. It is based on data obtained from the Mobility and Transport microcensuses (MTMC) conducted by the Swiss Federal Statistical Office and the Swiss Office for Spatial Development. The introduction of the stage-concept in 1994 allows since a time series analysis. For this, data from 1994, 2000, 2005, 2010 and 2015 were included. It covers mobility conditions (e.g. the availability of bicycles and public transport passes, whether or not the household has access to cars), distance to travel and use of means of transportation, broken down by all purposes, education- and leisure-related travel, age, sex, part of the country and other criteria.

This summary covers the most important findings in the following order:

- different age groups use different means of transportation;
- education and leisure are the main purposes of mobility;
- major differences exist between language regions;
- active mobility plays a part vis-à-vis recommendations for physical activity and body mass index;
- shifts occur depending on transport availability: bicycle, public transport pass, motor vehicle;
- developments in respect of individual modes of locomotion: walking, bicycling, public transport, individual motor vehicle;
- three important factors affect mobility: bicycle parking spots, public transport passes and cars in the household.

Trends in mode of locomotion used differ depending on age group

Children aged 6 to 12: little change over time

Children aged between 6 and 12 make more than half (52%) of their day-to-day trips – domestic travel for all purposes – on foot and a further 10 per cent by bicycle. They thus engage in physical activity to cover nearly two thirds of day-to-day trips. By contrast, they use public transport for 8 per cent of trips and are either driven to their destination or picked up from it 28 per cent of the time. This pattern has undergone little change since 1994.

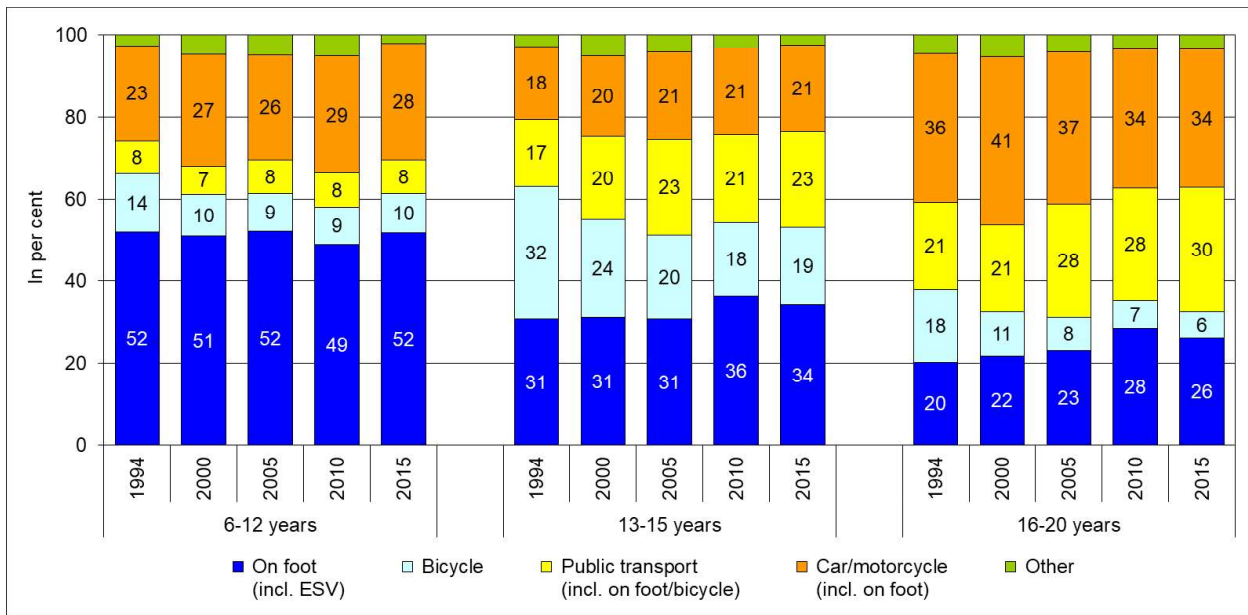
Children aged 13 to 15: bicycle use holding steady following a shift to walking and use of public transport and motor vehicles

Children aged 13 to 15 continue to make roughly one third of their trips on foot. Nearly every fifth trip is by bicycle. As such, this age group also engages in physical activity on over half of all day-to-day trips. Segments travelled on public transport or in a motor vehicle are in the range of something over 20 per cent each. Bicycle use rose slightly in 2015, after having dropped sharply since 1994. Over time, the drop in bicycle use has been offset by walking and the use of public transport and motor vehicles.

Young adults aged 16 to 20: decidedly more recourse to public transport and walking, less to bicycles and motor vehicles

In the past two decades, mobility patterns have changed most among young adults aged 16 to 20, with the use of public transport rising by 42 per cent and walking by 29 per cent. During the same period, bicycle use plummeted by 64 per cent and motor vehicle use fell by 7 per cent. In this age group, trips involving physical activity (walking: 26%; bicycle: 6%), public transport (30%) or a motor vehicle (34%) account for roughly one third each.

Figure 1E Choice of mode of locomotion for all domestic trips and for all purposes, by age group, in 1994, 2000, 2005, 2010 and 2015 (based on 9,847, 18,631, 18,785, 34,864 and 36,883 trips, resp., by children and adolescents)



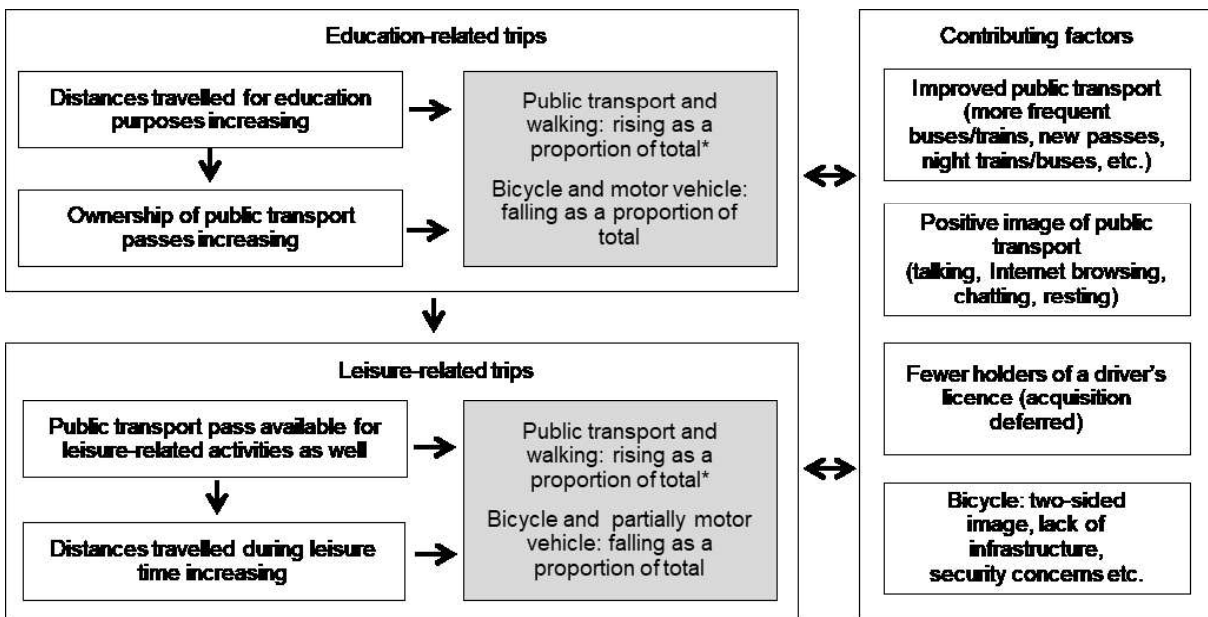
Data sources: FSO/ARE, 1994 Transport Microcensus, 2000 Transport Microcensus, 2005 Transport Microcensus, 2010 Mobility and Transport Microcensus, 2015 Mobility and Transport Microcensus; ESV= equipment similar to a vehicle

Paradigm shift in the mobility of adolescents and young adults?

Over the years, the microcensus data have revealed such fundamental changes in the mobility behaviour of adolescents and young adults (sharp drop in bicycle use; steep increase in use of public transport and in walking) that the question of an actual paradigm shift arises. Figure Z-2E represents an attempt to determine the most important factors underlying this shift. The presentation does not overlap perfectly with the data, but it does provide strong empirical indications.

Figure Z-2E distinguishes between education- and leisure-related trips (boxes left, top and bottom), on the one hand, and between the various contributing factors (box right), on the other.

Figure 2E Schematic presentation of possible linkages between, and factors contributing to, changes in mobility between 1994 and 2015 among adolescents and young adults



* Segment (stage) from / to a stop and independent trips on foot

It would appear that the growing distance travelled for education-related purposes (box top left) is one of the reasons mobility behaviour has changed. Because of the longer distances, some adolescents can no longer travel to school by bicycle and have started using public transport, a motor vehicle often being not (yet) available. The change usually involves the acquisition of a public transport pass. As a result of the growing use of public transport, the trip to and from the stop or station is often done on foot. What is more, at destination more individual trips are made on foot, for example over lunch hour or at the end of the school day.

Because the public transport pass is already available for travel to and from school, more leisure-related trips are also made using public transport (box bottom left) – or at least that is the assumption here – for example, for an evening out in the next village or next biggest town or city. This is one of the reasons why the distances this age group travels for leisure-related reasons have increased. Greater public transport use during free time has also led to more walking, for example when the adolescents walk to and from a cinema or restaurant; and thanks to the well-developed night bus and train network (contributing factor), adolescents are less often dependent on a motor vehicle to get to and from leisure activities. The use of motor vehicles and bicycles has therefore continued to drop as a proportion of the total in this regard as well.

These changing trends are already discernible among children aged 13 to 15, but are most clearly visible among adolescents aged 16 to 20. They are driven by four factors that have significant and mutually enhancing effects on the mobility behaviour of adolescents and young adults (box right):

- Improved public transport possibilities: in recent years, public transport services have improved markedly, whether in terms of a better-developed network, schedule (more frequent trains and buses, night buses and trains) or new types of passes (e.g. the Gleis 7 late-night travel card for young people);
- The use of public transport is encouraged thanks to the positive attitude of young people to this mode of locomotion – on public transport they can engage in conversations, browse the Internet or just “be” (see Sauter/Wyss 2014);
- The acquisition of a driver's licence is increasingly deferred, because, for example, of changing priorities in terms of mobility and spending and because public transport is a viable alternative to the car or motorcycle;
- And last but not least, for individual young people, the image of the bicycle has become two-sided. Depending on the group, it has become especially “uncool” to ride a bike. In addition, infrastructure is lacking (e.g. parking spots) and parents and friends have safety concerns (see Sauter/Wyss 2014).

Education and leisure are the main purposes of mobility

School and leisure are the main purposes of mobility among children, accounting for about 40 per cent of day-to-day mobility. Among young adults, work and shopping also play a role.

Trips to and from school remain short for children, are growing steadily longer for adolescents

Because educational facilities are increasingly situated in central locations, the distance to be travelled is growing and the number of education-related trips per day falling. The duration of the journey has changed very little, however. Even where the distance has increased slightly, trips to and from primary school remain short: two out of three are under a kilometer and take fewer than 12 minutes. Among secondary school children, over two thirds are up to 3 km long and last an average of 15 minutes. It is only at the next level (occupational training, high school, etc.) that the distance of travel to school goes up noticeably. In 2015 it was on average 12.6 km (median 5.6 km). But even then, 36 per cent of trips were under 3 km (47% in 1994). In this age group the trips are just short of half an hour.

Walking, bicycling and public transport are the most frequently used modes of locomotion for education-related trips

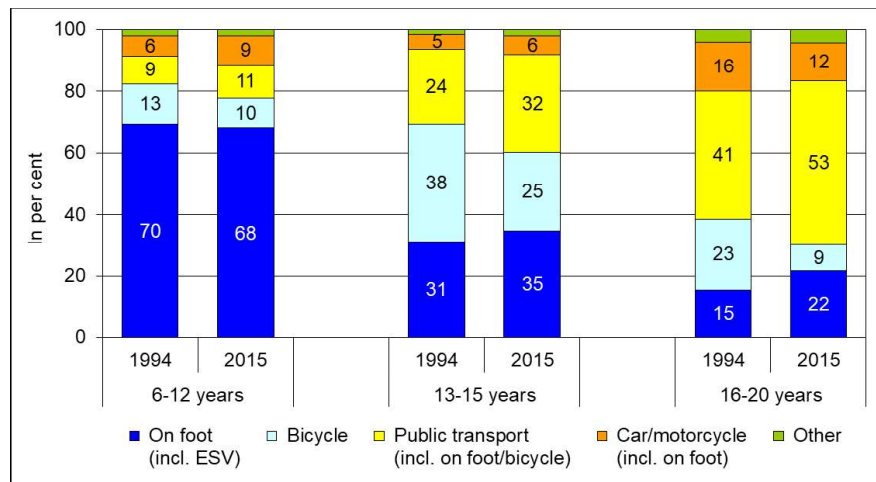
Primary school pupils make 7 out of 10 trips to and from school on foot, while about 10 per cent bicycle, use public transport or are driven. Chauffeuring of children – the “parent taxi” service – is overall not as widespread as is often thought (see below). The situation has changed little over the years: bicycle use has dropped somewhat, with the slack being picked up by public transport and motor vehicles.

At secondary school level, roughly one third of trips to and from school are done on foot, another third using public transport and one quarter by bicycle. Very few trips are made in a motor vehicle. The share of travel by bicycle plummeted over time, before rebounding slightly in 2015 for the first time.

Between 16 and 20 years of age, most education-related trips – over half – are made using public transport, the share of which has increased sharply, in particular because of the longer distances. About one fifth of trips are made on foot, a share that has also increased considerably. Bicycles and motor vehicles, on the other hand, are less frequently used than in the past.

Figure 3E
Choice of mode of locomotion used on education-related trips in 1994 and 2015, by age (based on 3,730 and 13,419 trips, resp.)

Source: FSO/ARE: Mobility and Transport microcensuses



“Parent taxi” service: overall only moderately significant – with a few major exceptions

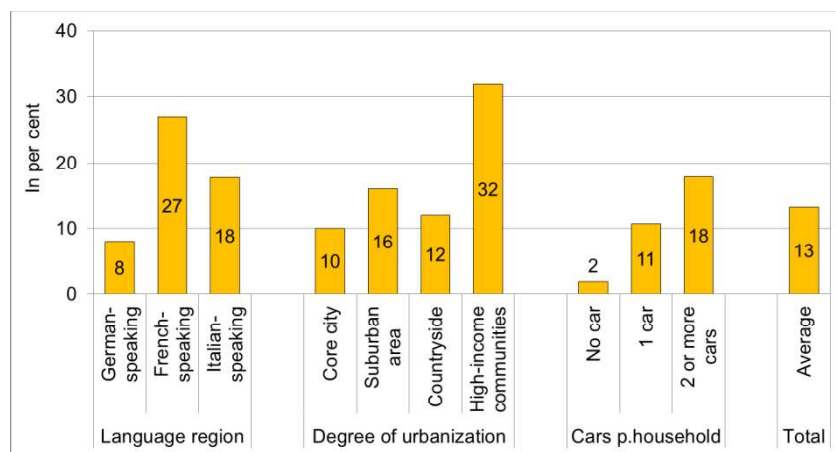
The number of children being chauffeured to and from school is often discussed and can be a problem in certain areas but is overestimated. In the case of 6- and 7-year-old children, 13 per cent of trips to and from school are by car. That figure falls to 10 per cent for those aged 8 and 9, and to 7 per cent for those aged between 10 and 12. The proportion of journeys by car in these age groups has risen since 1994 but remains moderate when compared to other countries.

Children are much more likely to be chauffeured in the French- and Italian-speaking regions of Switzerland, in high-income communities and in households with more than one car. In 2015, children aged 6 and 7 in French-speaking Switzerland were chauffeured on 27 per cent, and those in Italian-speaking Switzerland on 18 per cent, of education-related trips; the figure fell to 8 per cent for children in German-speaking Switzerland. This may be due in part to the longer distances, themselves the outcome of different school systems in certain cantons.

Variations by type of area – city, suburban area or countryside – are relatively minor. The proportion of children being driven is significantly higher, however, in higher-income communities (32%) and in households with two or more cars (18%). Irrespective of the household's language region, of whether it is located in a city, a suburban area or the countryside, and of the distance, everywhere the share of children being chauffeured is significantly higher in households with several cars than among other children. Only roughly one quarter of children being driven to school cover the *all* education-related journeys on the reference date by car. Three quarters also travel by other modes, in particular on foot. This indicates that many children are only driven on occasion and are not constantly being brought to or fetched from school.

Figure 4E
Proportion of trips on which 6- and 7-year-old primary school children are brought to school by car (“parent taxi” service), by language region, degree of urbanization and cars per household, 2015 (based on 1,533 trips)

Source: FSO/ARE: Mobility and Transport microcensuses

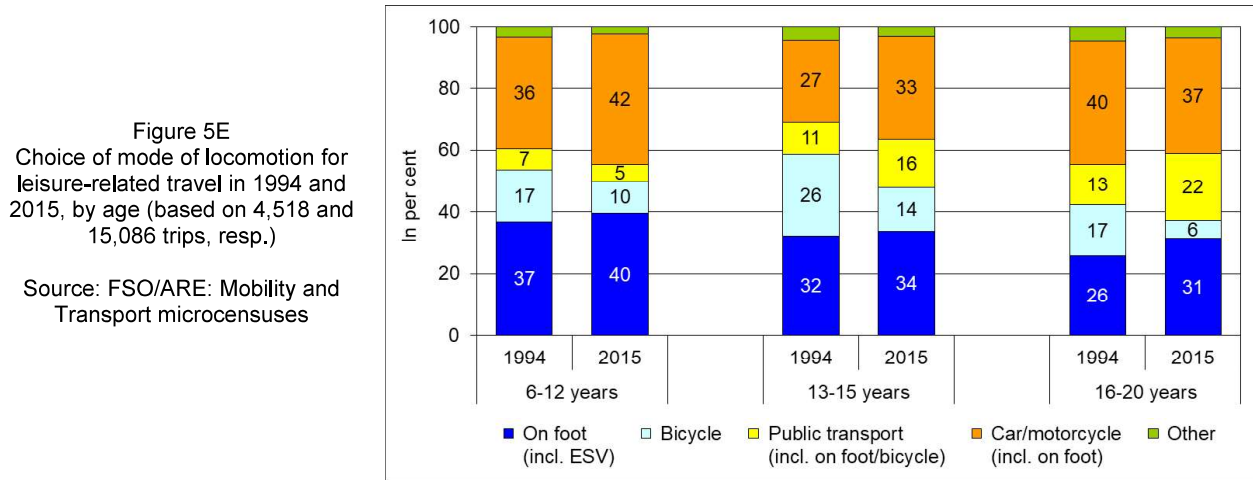


Leisure-related trips markedly longer, but over half remain in the immediate vicinity

On average, children and adolescents make 1.5 leisure-related trips per day. That figure has dropped slightly among those over 13, but the distances travelled and the average duration have risen sharply, by about 50 per cent among those aged 13 to 15 and about 20 per cent among those aged 16 to 20. Despite that increase, half of all leisure trips in the third group are 3.6 km or less and last no more than 16 minutes. Among those aged 6 to 12, 60 per cent of day-to-day leisure-related travel lies within the immediate vicinity of the home (under 3 km). Those figures do not take account of outdoor play (not recorded in the microcensus) or (longer) trips with and without an overnight stay, which are not shown here.

Leisure-related trips made essentially on foot or by car

Next to the car, walking is the main mode of locomotion for all age groups for leisure-related travel. Bicycle use has dropped significantly since 1994, whereas public transport use has increased, above all among adolescents. Motor vehicle use has gone up in the age groups between 6 and 15 but shrunk among those aged 16 to 20, who are tending more and more to walk.



Leisure-related trips – to some extent surprisingly frequently made on foot

Active sports, visits to relatives, acquaintances and friends, and non-sports outdoor activities (including, for example, walks) accounted for the largest share of leisure-related mobility. Among those aged 16 to 20, eating out also accounted for a significant share.

Around half of children and adolescents get to active sports activities on foot or by bicycle. When it comes to visits to friends and family, the mode of locomotion depends heavily on age and distance: the youngest go mainly on foot, those aged 13 to 15 are more likely to use bicycles or public transport, and young adults use motor vehicles for 43 per cent of trips. In a surprisingly large number of cases, young people go to restaurants on foot: 44 per cent among those aged 16 to 20. In the countryside, that figure rises to 51 per cent; it would seem that they like to walk to their local restaurant or bar.

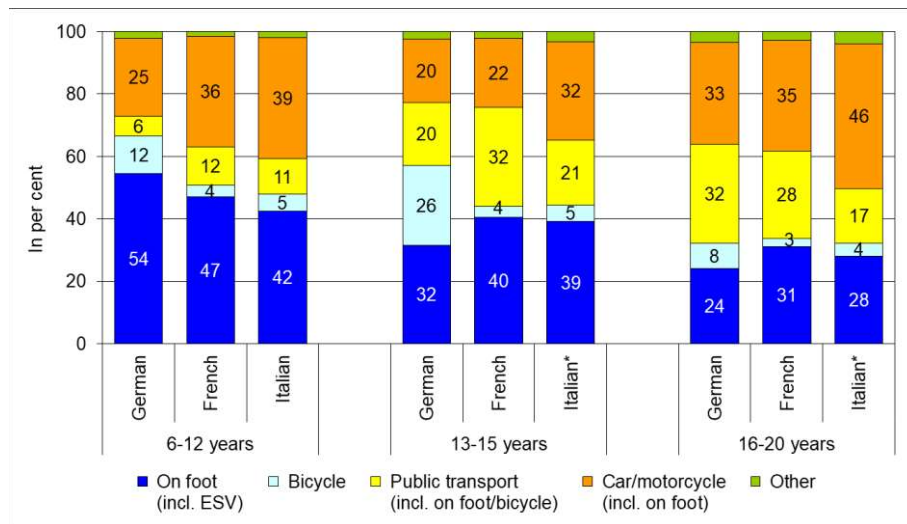
Major differences between language regions

Major differences in choice of mode of locomotion between language regions

There are significant differences in mobility behaviour between language regions. German-speaking children aged between 6 and 12 do more of their daily travel on foot or by bicycle than children in the same age group in French- and Italian-speaking Switzerland, where public transport and motor vehicles account for a much larger share. In the 13- to 15-year-old age group, there is a large difference when it comes to bicycle use: 26 per cent in the German-speaking part of the country, compared to 4 and 5 per cent in the French- and Italian-speaking regions, respectively. Compared to the younger age group, bicycling in German-speaking Switzerland is replacing walking to some degree, whereas in Western Switzerland and in the Tessin, more trips involve travel by public transport and motor vehicle, respectively, than by bicycle. Among those aged 16 to 20, relatively similar patterns are observed in French- and German-speaking Switzerland. In the Tessin, however, the share of individual motor vehicle use is significantly higher than in the other two language regions, and public transport use distinctly lower.

Figure 6E
Choice of mode of locomotion for all travel in 2015, by age group and language region (based on 23,358, 12,027 and 1,498 trips, resp.)

Source: FSO/ARE: Mobility and Transport microcensuses



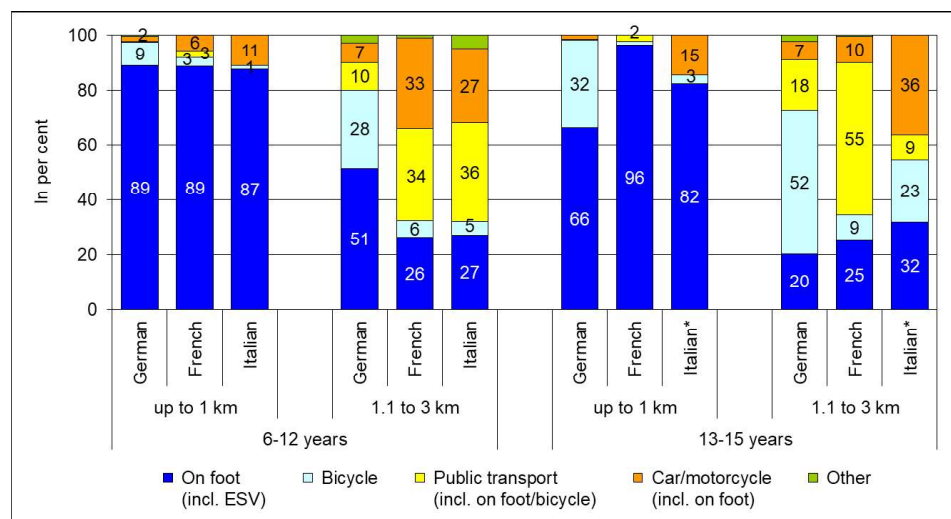
There are probably many reasons for the differences. In French-speaking Switzerland, for example, distances to educational facilities are a bit longer, especially for the youngest children, resulting in a higher share of travel by public transport and motor vehicle. Accordingly, the number of children with public transport passes is also higher. At the age of 13 to 15, it has become an established custom to combine public transport and walking. In addition, bicycles are less frequently available and there are fewer bicycle parking spots in Western Switzerland and in the Tessin. Cause and effect nevertheless remain unclear. Generally speaking, a great deal more research is needed into the reasons for differences between language regions in the mode of locomotion used.

The effects of, and differences in, choice of mode of locomotion between language regions are especially evident during obligatory school age (6-15 years) on education-related trips of up to 3 km, i.e. over comparable distances. While there are no major differences between language regions among those aged 6 to 12 on trips of up to 1 km, when it comes to distances of between 1.1 and 3 km the majority of children in German-speaking Switzerland go to school on foot (51% of trips) or by bicycle (28%). In Western Switzerland and in the Tessin, on the other hand, walking accounts for only about one quarter of trips, and bicycle travel about 5 per cent; children in those regions make more frequent use of public transport or are driven. Between the ages of 13 and 15, a clear majority of children in the German-speaking part of the country travelling distances of between 1.1 and 3 km do so by bicycle (52% of trips); in French-speaking Switzerland they use public transport (55%) and in the Tessin they tend to travel by motor vehicle (36%). The picture is similar for distances of up to 1 km, although the differences are less stark. Walking predominates in all language regions on such short distances.

Figure 7E
Choice of mode of locomotion for education-related trips of up to 3 km during obligatory school age, by language region, 2015 (based on 6,080, 2,757 and 352 education-related trips, resp.)

* low sample size

Source: FSO/ARE: Mobility and Transport microcensuses



Role of active mobility vis-à-vis recommendations for physical activity, body mass index

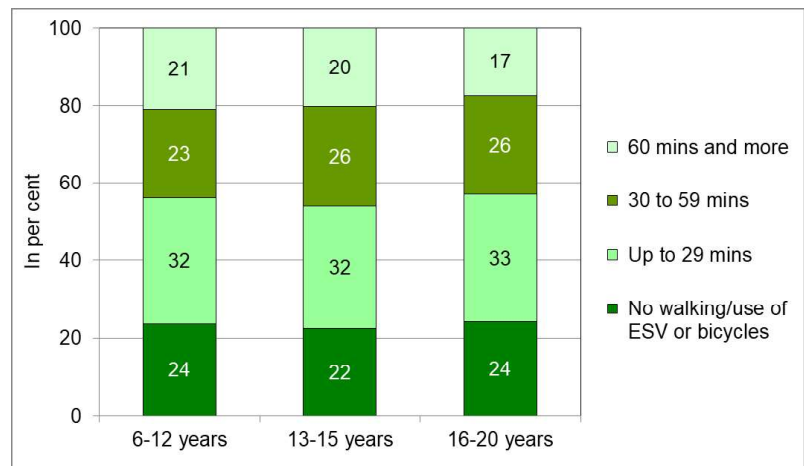
Active mobility (walking and bicycling) accounts for about 20 per cent of recommended physical activity

To what extent do targeted day-to-day trips help meet the overall goal for physical activity? The World Health Organization (WHO) and the hepa.ch⁷ network recommend that children engage in at least 60 minutes of physical activity per day (WHO 2011, Federal Office of Sport 2013). This encompasses outdoor play and sports activities at school or during free time, which are not captured in the “Mobility and Transport” microcensuses.

When one considers total active mobility, i.e. walking (including equipment similar to a vehicle (ESV)) and bicycling, about 20 per cent of children and adolescents are under way for more than 60 minutes. About one fifth of those aged 6 to 20 thus meet WHO and hepa.ch recommendations for physical activity solely through targeted mobility. A further quarter is actively underway between 30 minutes and one hour, which also helps meet the recommendation. About half of children and adolescents are under way fewer than 30 minutes or were not at all active on the reference date.

Figure 8E
Categorized travel time per day on foot, by
ESV and bicycle combined, all purposes,
2015 (based on 4,703, 2,238, 3,571 children
and adolescents aged between 6 and
20)

Source: FSO/ARE: Mobility and Transport
microcensuses



The link between active mobility and body mass index is inconsistent

There is no clear statistical link between body mass index (BMI)⁸, categorized by under-/average weight children and adolescents and those overweight/obese, and daily travel time. Although under-/average weight children aged between 6 and 15 who were mobile on the reference date undertook a higher proportion of longer education-related trips involving physical activity than overweight/obese children, the reverse is true for those aged 16 to 20. The results are also inconsistent for leisure-related trips. International studies also have determined that there is no clear link between daily mobility and BMI in children and adolescents. One explanation may be that daily mobility – which often still involves only a short trip to and from school, especially for the very young – is not intensive enough to have a decisive impact on BMI compared to other activities and factors (such as nutrition, sport and play). That impact may be felt only at adult age. Nevertheless, active trips to and from school and leisure activities account for a substantial share of day-to-day physical activity. They improve bodily and spatial awareness, along with the capacity to concentrate, and are therefore of great physical, motor, psychological and social importance.

⁷ Health-enhancing physical activity, network for health and physical activity Switzerland, hepa.ch, Federal Office of Sport (FOSPO), Federal Office of Public Health (FOPH), Magglingen 2013. For English see: https://www.hepa.ch/content/hepa-internet/de/bewegungsempfehlungen/_jcr_content/contentPar/accordion_1163474913/accordionItems/dokumente_in_englisc/accordionPar/downloadlist_copy/downloadItems/6_1481178828541.download/hepa_Merkblatt_Gesundheitswirksame_Bewegung_Kinder_EN.pdf

⁸ For children, BMI cannot be calculated using the standard method, as growth entails a lower and more highly fluctuating BMI than in adults. Other methodological restrictions are self-declarations and small sample sizes.

Shifts in the availability of modes of locomotion

Bicycle availability continues to fall ...

Seven out of 10 children aged between 6 and 12 have unlimited access to a bicycle, compared to 9 out of 10 in 1994. Availability is higher in the 13-to-15-year-old age group (85%) and the drop in availability somewhat smaller. More children and adolescents tend to have access to a bicycle in German-speaking Switzerland and in rural areas than in Western Switzerland, in the Tessin and in cities and suburban areas. Among younger children, boys are somewhat more likely to have access to a bicycle than girls, but the gap closes as of the age of 13.

... while ownership of public transport passes rises

Unlike access to a bicycle, ownership of public transport passes has increased sharply in the past 20 years. Four out of 5 adolescents aged between 16 and 20 have at least one such pass, compared to 65 per cent in 1994. Many more children up to the age of 15 have a public transport pass in French- and Italian-speaking Switzerland than their counterparts in German-speaking Switzerland. At the age of 16 to 20 the proportions have virtually equalized. In rural areas, slightly fewer adolescents have a pass than in cities and suburban areas. More girls and women have a pass than boys and men.

Acquisition of the driver's licence deferred

There was a marked slump in driver's licence possession between 2000 and 2005. Since then, the number of young adults with a driver's licence has risen slightly. In 2015, 56 per cent of those aged 18 to 22 had a driver's licence, compared to 67 per cent in 2000. Over the longer term, however, the differences even out, meaning that people are deferring the acquisition of a driver's licence rather than opting not to have one. There is no difference between German- and French-speaking Switzerland, but possession of a driver's licence is markedly more common in the Italian-speaking part of the country. Young men, especially those living in rural areas, are more likely to have a driver's licence than young women and people living in cities or suburban areas.

Availability of at least one motor vehicle continues to fall

Adolescents and young adults are less likely to have access to a motor vehicle than in the past. Twenty per cent of those aged 14 to 20 have unlimited access to a motor vehicle, 14 per cent by arrangement (2010: 29% and 13%, respectively). The decrease can be traced to the lower availability of mopeds and the deferred acquisition of the driver's licence. In German- and French-speaking Switzerland, roughly equal numbers have access to a motor vehicle, but the figure is clearly higher in Italian-speaking Switzerland. The degree of motorization is higher in rural areas than in cities and suburban areas; male adolescents are more often motorized than their female counterparts.

Changes in terms of individual modes of locomotion

Footing it: how most children and adolescents get around

Depending on the purpose of travel and age, up to 70 per cent of all trips are made on foot, a figure that rises to 90 per cent for trips of up to 1 km. For the youngest, walking is the most frequently used mode of locomotion for getting to school: 7 out of 10 trips to primary school are made on foot, but adolescents traveling to a leisure activity also do every third trip on foot. The amount of walking has increased most significantly among those aged 16 to 20, above all in cities, for education- and leisure-related trips and over short distances. Among those aged 6 to 12, "purely pedestrian" travel is most common, whereas adolescents tend to combine walking with other modes. This demonstrates the significance of walking both as an independent means of locomotion and as a link between two other modes.

Equipment similar to vehicles: a modest, but probably underestimated share

What is known as equipment similar to vehicles (ESV), such as mini scooters and kickboards, plays only a minor role among children and adolescents. Even on the way to school, the youngest children use ESV in only about 5 per cent of cases. Data from other surveys nevertheless indicate that this share has been underestimated in the "Mobility and Transport" microcensus.

Bicycles: use appears to have bottomed out and may even be rising

Bicycle use has dropped as a share of traffic volume over many years. Among children aged 13 to 15, who use bicycles the most often, the share fell, for example, from 32 per cent in 1994 to 19 per cent in 2015. The biggest drop occurred between 1994 and 2000, from 32 to 24 per cent. However, bicycle use seems to have bottomed out and in some instances is even rising again. This is the case essentially for short distances of up to 1 km, on trips both to and from school and leisure activities. Increases have also been observed in German-speaking Switzerland, among boys and young men, and in rural areas among 13- to 15-year-old children.

E-bikes play practically no role among adolescents, who can use them as of the age of 14. At present, very few adolescents (in the per thousand range) use e-bikes to get around.

Public transport: use continues to climb, above all among adolescents

Public transport is of growing importance above all among young adults: it accounts for the greatest share of travel – 53 per cent – for educational purposes. For such travel over distances of more than 3 km, for example, public transport accounts for over 75 per cent. The growing distances such trips involve are a major reason for that increase. For those distances, children and adolescents have no other mode of locomotion. Constant improvements in service (greater frequency, night buses and trains, Gleis 7 passes, etc.), a positive image and practical advantages (adolescents can be on their smartphones, chat and watch movies on public transport, which is more difficult on other modes of locomotion) have contributed to the steady growth in public transport. Public transport is combined above all with walking; it does not tend to be combined with bicycle or motor vehicle use.

Motor vehicle transport: more frequent among the youngest, falling off among adolescents

There are big differences between education- and leisure-related travel: although motor vehicle use is relatively rare for trips to and from school (barely 10%), it accounts for almost 40 per cent of leisure-related trips. Among young adults, the share of motor vehicle use for leisure-related travel has dropped 18 per cent since 2000 (from 41% to 34%). Among both younger age groups, who essentially travel by car accompanied by their parents, the share rose during the same period, somewhat more for leisure travel than for school trips.

Changes in choice of mode of locomotion: overview

The table below gives an overview of the changes in choice of mode of locomotion between 1994 and 2015.

Table 1E Changes in choice of mode of locomotion on all domestic travel (all purposes) among children and adolescents, 1994 to 2015, by age group (Source: FSO/ARE: "Mobility and Transport" microcensuses)

	On foot	Bicycle	Public transport	Motor vehicle
6-12 years	No change +/- 0%	Steep decrease - 33% *	No change + 2%	Increase + 22% *
13-15 years	Slight increase + 11% *	Steep decrease - 42% *	Sharp increase + 41% *	Increase + 20% *
16-20 years	Increase + 29% *	Steep decrease - 64% *	Sharp increase + 42% *	Slight decrease - 7% *

* indicates a significant change ($p < .05$) and therefore a 95-per-cent probability that it did not occur by chance

Major factors of change: bicycle parking spots, public transport passes and household car ownership

Readily accessible and secure bicycle parking spots result in more segments being covered by bicycle

Around four fifth of children and adolescents each have access to a bicycle parking spot at home and/or the educational facility. *At home*, two thirds of bicycle parking places are in lockable rooms, 47 per cent are covered, 35 per cent are readily accessible and 19 per cent allow the bike to be tethered (more than one possibility could be ticked). The availability of a bicycle parking spot at home in and of itself has little influence on the choice of mode of locomotion among children and adolescents. Accessibility is a different matter. Children aged 6 to 12 with access to a lockable room use their bicycles significantly less frequently than when no such room is available. This indicates that the fact that the bicycle is more secure has a price, namely that it is less readily accessible and therefore less frequently used.

At educational facilities, two thirds of parking spots are easy to access and/or covered. At only two out five spots can the bicycle be attached, however, and only 10 per cent of children and adolescents have access to a lockable room. Those figures are low, also in view of the heightened risk of theft and vandalism at school buildings. In French- and Italian-speaking Switzerland, there are markedly fewer bicycle parking spots at schools than in the German-speaking part of the country, and these are significantly less well equipped to protect the bicycles against theft and weather.

Unlike the situation at home, there is a strong link between the availability of parking spots at educational facilities and bicycle use. Where such spots are available, young people are markedly more likely to cover at least one leg of the journey to school by bicycle on the reference date than when no such spots are available. The question of cause and effect remains open: do children and adolescents not bicycle to school because there are no bicycle racks, or are no bicycle racks made available because no one bicycles to school or because doing so is prohibited? Among those aged 16 to 20, the quality of the parking spot is just as decisive as its availability: those with access to a readily accessible and covered bicycle rack are distinctly more likely to do at least one leg of the journey to school by bicycle on the reference date. In the future, therefore, it is key to create enough readily accessible parking spots – whether at home or at the educational facility – that are also theft- and vandal-resistant.

Pass ownership leads to frequent use of public transport for short distances and thus competes with bicycle use

Those who have a public transport pass use public transport much more frequently than those who do not. That seems logical, as only those that actually (have to) use public transport have a pass, and vice versa. The figures for short distances that can be travelled both by public transport and by bicycle make interesting reading. For distances of between 1.1 and 3 km, those aged 13 to 15 with a pass make 70 per cent of their school trips on public transport, about 10 per cent on foot and 10 per cent by bicycle. On the other hand, children without a pass make 58 per cent of trips by bicycle and 27 per cent on foot, and hardly use public transport. Use of public transport is therefore above all at the expense of bicycle use, with which it thus competes over a distance in which the bicycle offers the most advantages. For distances of over 3 km, pass holders make more frequent use of public transport, others tend to travel by motor vehicle. For leisure activities as well, all age groups make distinctly more use of public transport when they already have a pass than when they do not.

The number of cars in the household has a strong impact on choice of mode of locomotion

Families with children have a higher-than-average tendency to have several cars in the household than the rest of the population. In Italian-speaking Switzerland, a greater proportion of children and adolescents live in households with several cars than in French-speaking Switzerland, where the proportion is higher than in the German-speaking part of the country. In rural areas, there are markedly more children in households with several cars than in cities; suburban areas fall between the two. The number of cars in the household has a strong impact on the choice of mode of locomotion, especially on the share of walking, use of public transport and motor vehicles, but not on the use of bicycles. Children aged 6 to 12 from car-free households, for example, make two thirds of their trips on foot; children from households with two or more cars only 45 per cent. The more cars are available, the less recourse is had to public transport. Where one or more cars are available in the household, they are used. Those aged 16 to 20 from households with two or more cars make 46 per cent of leisure-related trips using a motor vehicle, those from car-free households only 17 per cent.

Figure 9E

Choice of mode of locomotion, by number of cars in the household and age group (all purposes), 2015 (based on 16,710, 7,769 and 12,379 trips by children and adolescents aged between 6 and 20)

Source: FSO/ARE: Mobility and Transport microcensuses

