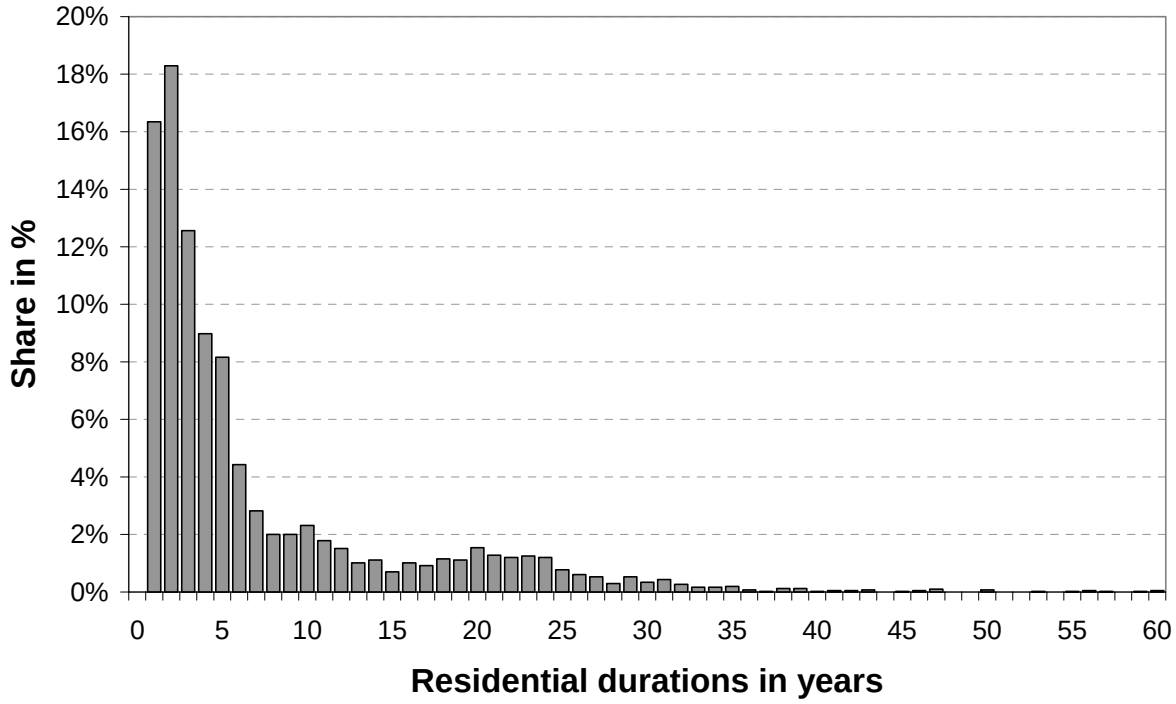

Long-term mobility decisions in the life course

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Long-term mobility decisions in the life course

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Abstract

Long-term spatial mobility of people involves on the one hand decisions on residence locations and the corresponding moving behaviour. In this context distance and direction, frequency of moves and durations of stays as well as reasons for moving play an important role. On the other hand choices concerning the ownership of mobility tools, such as cars and different tickets for public transport, also constitute a decision with long-lasting impact.

In order to study the relationships between these two aspects of long-term spatial mobility a longitudinal survey focusing on the canton Zurich was carried out at the beginning of the year 2005. The survey was conducted by means of a written self-completion questionnaire which consisted of two parts, namely a household form and a person form. Each household received one household form for the whole household and two person forms that were to be filled in by persons aged 18 years and older. The household form asked for the current address, a short description of all persons living in the household and the household income. In the person form socio-demographic and socio-economic characteristics of the respondents were collected. The essential part of this form was a multidimensional life course calendar for the years from 1985 to 2004. For this period retrospective information about the personal and familial history, the household size as well as data on moves and corresponding places of residence with according descriptions were collected on the one hand. On the other hand people were asked to indicate their changing ownership of cars and different public transport tickets. Furthermore information on the places of education and employment, on the main mode of transport for the commuting trip as well as on the personal income was collected for the last twenty years.

The questionnaire, together with a self-addressed envelope was sent per post to 3600 households. Overall 779 households participated in the survey, which equals a response rate of 23.1%. This rate seems to be quite low, but it is related to the relative complexity of the questionnaire.

Besides descriptive investigations statistical analyses of the retrospective life course data of the last twenty years include the estimation of choice models as well as the application of event history modelling.

After a description of the conducted survey the paper concentrates on the analysis of the long-term mobility decisions during the life course. The main focus lies on the dynamics of mobility tool ownership over the last twenty years, at the same time looking at the relationships to residential choices as well as to education and employment locations within the same period.

Keywords

Longitudinal survey – Life course calendar – Residential history – Mobility tool ownership – Swiss Transport Research Conference – STRC 2006 – Monte Verità

1. Introduction

Long-term spatial mobility of people involves on the one hand decisions on residence locations and the corresponding moving behaviour. In this context distance and direction, frequency of moves and durations of stays as well as reasons for moving play an important role (Wagner, 1990). On the other hand choices concerning the ownership of mobility tools, such as cars and different tickets for public transport, also constitute a decision with long-lasting impact. So an accordant study showed that ownership respective non-ownership remains stable over longer periods of time (Axhausen und Beige, 2003). These two aspects of long-term spatial mobility behaviour are closely connected to one another.

A longitudinal perspective on these relationships is available from people's life courses, which link different dimensions of life together. Besides the personal and familiar history locations of residence, education and employment as well as the ownership of mobility tools can be taken into account. These life course dimensions are usually not independent from one another. Events in one area are frequently connected to changes in other areas. At the same time this longitudinal approach provides the possibility to observe developments over time (Wagner, 1990). Concerning the analysis of residential mobility there is the further advantage of taking resident and mobile people into account at the same time since the respondents both stay and move during the observed period of time (Wagner, 1990).

In order to study the dynamics of long-term spatial mobility a longitudinal survey for the period from 1985 to 2004 focusing on the canton Zurich was carried out at the beginning of the year 2005.

After a description of the conducted survey the paper concentrates on the analysis of the long-term mobility decisions during the life course. The main focus lies on the dynamics of mobility tool ownership over the last twenty years, at the same time looking at the relationships to residential choices as well as to education and employment locations within the same period.

2. Description of the survey

2.1 Survey instrument

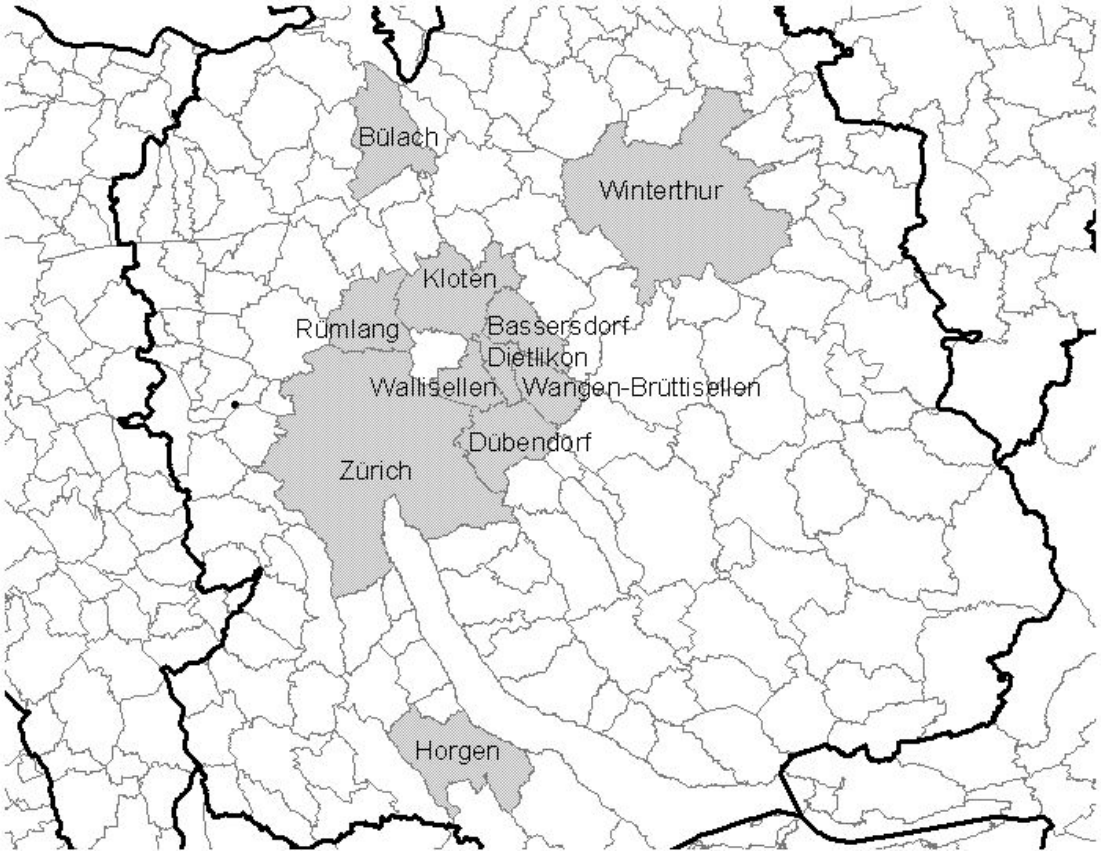
The survey was conducted by means of a written self-completion questionnaire which consisted of two parts, namely a household form and a person form. Each household received one household form for the whole household and two person forms that were to be filled in by persons aged 18 years and older. The household form asked for the current address, a short description of all persons living in the household and the household income. In the person form socio-demographic and socio-economic characteristics of the respondents were collected. The essential part of this form was a multidimensional life course calendar for the years from 1985 to 2004. For this period retrospective information about the personal and familial history, the household size as well as data on moves and corresponding places of residence with according descriptions were collected on the one hand. On the other hand people were asked to indicate their changing ownership of cars and different public transport tickets. Furthermore information on the places of education and employment, on the main mode of transport for the commuting trip as well as on the personal income was collected for the last twenty years. Appendixes A1 and A2 show the questionnaire.

The time required to fill in the questionnaire amounted to approximately 30 to 90 minutes, depending on the frequency of changes within the different dimensions of life during the observed twenty year period.

2.2 Survey sampling

Figure 1 shows the location of the stratified sample of municipalities which constitutes the eleven study areas of the survey. These municipalities are all located in the canton Zurich focusing on the Glattal region. This focus is due to the initial cooperation with the project "Infrastructure, accessibility and spatial planning" of the Network City and Landscape. The objective of the project is to develop a dynamic urban simulation model for the Glattal region.

Figure 1 Location of the study areas in the canton Zurich



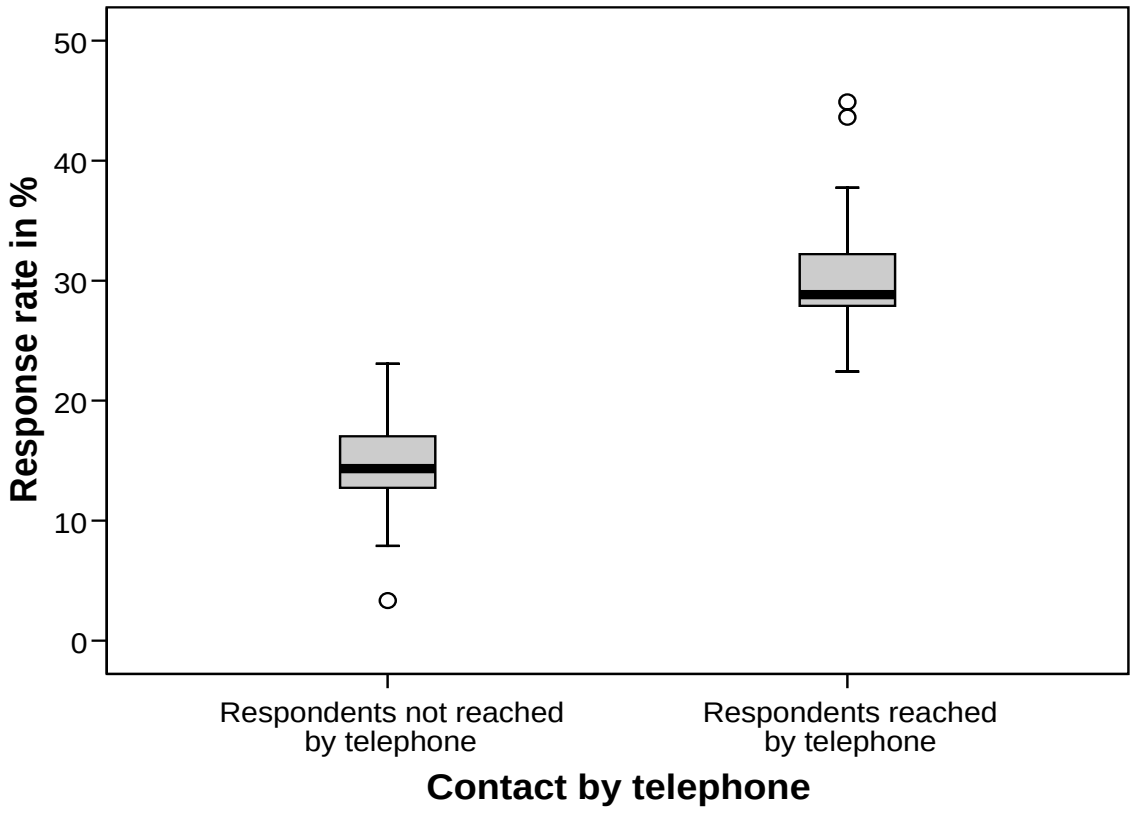
At the same time the sampling of the households was carried out in cooperation with the above mentioned project. In this context predominantly households that have moved within the last five years were sampled, including movers within the municipalities as well as arriving and departing residents. Therefore nearly one third of the sampled households live in other municipalities of Switzerland.

2.3 Survey procedure and response

In order to test the feasibility of the survey, the methodological procedure as well as the questionnaire a pre-test was carried out in one of the urban districts of Zurich in October 2004. The main survey in all eleven study areas as well as in the other Swiss municipalities took place from January to March 2005. The questionnaire, together with a self-addressed envelope was sent per post to 300 households in the pre-test and to 3300 households in the main survey. After two and four weeks a reminder followed.

In the pre-test the response rate amounted to only 19.9%, which is primarily due to the relative complexity of the questionnaire. Therefore in the main survey the households were, if possible, contacted by telephone shortly after they received the questionnaire to briefly explain the purpose of the survey and to motivate participation. 50.8% of the households could be reached in this way. In this group the response rate reached 30.9%, whereas in the other group with only 14.6% significantly fewer households participated in the survey. Figure 2 shows the response rate depending on whether the respondents could not be contacted or could be contacted by telephone.

Figure 2 Response rate in the main survey in regard to the contact by telephone



Taking both the pre-test and the main survey into account the response rate amounts to 23.1%. For the further statistical analyses 780 household forms and 1166 person forms are available.

3. Representativeness of the survey

3.1 Representativeness of the household sample

In order to analyse the representativeness of the survey sample the households are compared with the entire Swiss population. In this context data from the census of the year 2000 is used, which was collected by the Swiss Federal Statistical Office. Table 1 shows the comparison of the households in regard to different characteristics.

Table 1 Comparison of the households with the Swiss population

	Survey of mobility 2005	Swiss population 2000	Deviation
Number of persons in the household	2.2	2.3	+ 0.1
Share of one-person-households	30.4%	36.0%	+ 5.6%
Gender of the household persons:			
Male	48.5%	48.6%	+ 0.1%
Female	49.9%	51.4%	+ 1.5%
Age of the household persons:			
Average age	35.9 years	39.2 years	+ 3.3
Share aged below 20 years	20.2%	22.9%	+ 2.7%
Share aged above 64 years	9.9%	15.4%	+ 5.5%

N = 780 households

The deviations between the two samples are relatively small. In the survey the households are slightly smaller, whereas the share of one-person-households is lower. In regard to gender only small differences occur. At the same time the persons living in the households of the survey are over three years younger than in the Swiss population, with a higher share of persons aged from 20 to 64 years.

Considering these results the households in the survey are not weighted in respect to the entire Swiss population.

3.2 Representativeness of the person sample

Table 2 shows the comparison of the survey sample with the Swiss population of the year 2000 at the person level. In this context only persons aged 18 years and older are taken into account. Those persons are compared in regard to gender, age and the residence place five years ago.

Table 2 Comparison of the persons with the Swiss population

	Survey of mobility 2005	Swiss population 2000	Deviation
Gender of the persons:			
Male	49.9%	48.4%	– 1.5%
Female	50.1%	51.6%	+ 1.5%
Age of the persons:			
Average age	43.6 years	47.1 years	+ 3.5
Share aged from 18 to 39 years	48.5%	39.9%	– 8.6%
Share aged from 40 to 59 years	33.0%	34.7%	+ 1.7%
Share aged 60 years and older	18.4%	25.4%	+ 7.0%
Residence place five years ago:			
Same address and same municipality	26.8%	58.8%	+ 32.0%
Other address and same municipality	11.9%	14.5%	+ 2.6%
Other municipality and same canton	27.7%	13.3%	– 14.4%
Other municipality and other canton	12.6%	5.9%	– 6.7%
Not specified	21.0%	7.4%	– 13.6%

N = 1166 persons

The deviations for the shares of male and female persons amount to only about 2%. The persons who participated in the survey are slightly younger than the Swiss average. There are noticeably more persons aged from 18 to 39 years in the survey sample. The largest differences occur in regard to the location of the residence place five years ago. Only about one fourth of the persons in the survey still live at the same place, whereas this share amounts to over one half in the entire Swiss population. On the other hand persons living in another municipality are overrepresented in the survey. This large deviation is connected to the sampling of the households, which aimed for a higher share of households that have recently moved.

Therefore a weighting on the basis of the three variables gender, age and the residence place five years ago is implemented at the person level. Thereby the weighting factors range from 0.2 to 3.6.

4. Spatial classification in regard to transport

The further analyses are carried out on the basis of a spatial classification in regard to transport of the Federal Office for Spatial Development (2002). Thereby all Swiss municipalities are assigned to five different spatial types. The first type includes the nine main centres. These are cities with more than 100000 inhabitants and more than 50000 workplaces. Types 2 and 3 comprise the middle centres and the ancillary centres of the main centres with and without an access to the national railway network respectively. The municipalities of the inner and outer agglomerations form the fourth type. The last type consists of rural areas. Figure 3 shows this spatial classification in regard to transport.

Figure 3 Spatial classification in regard to transport of the Swiss municipalities

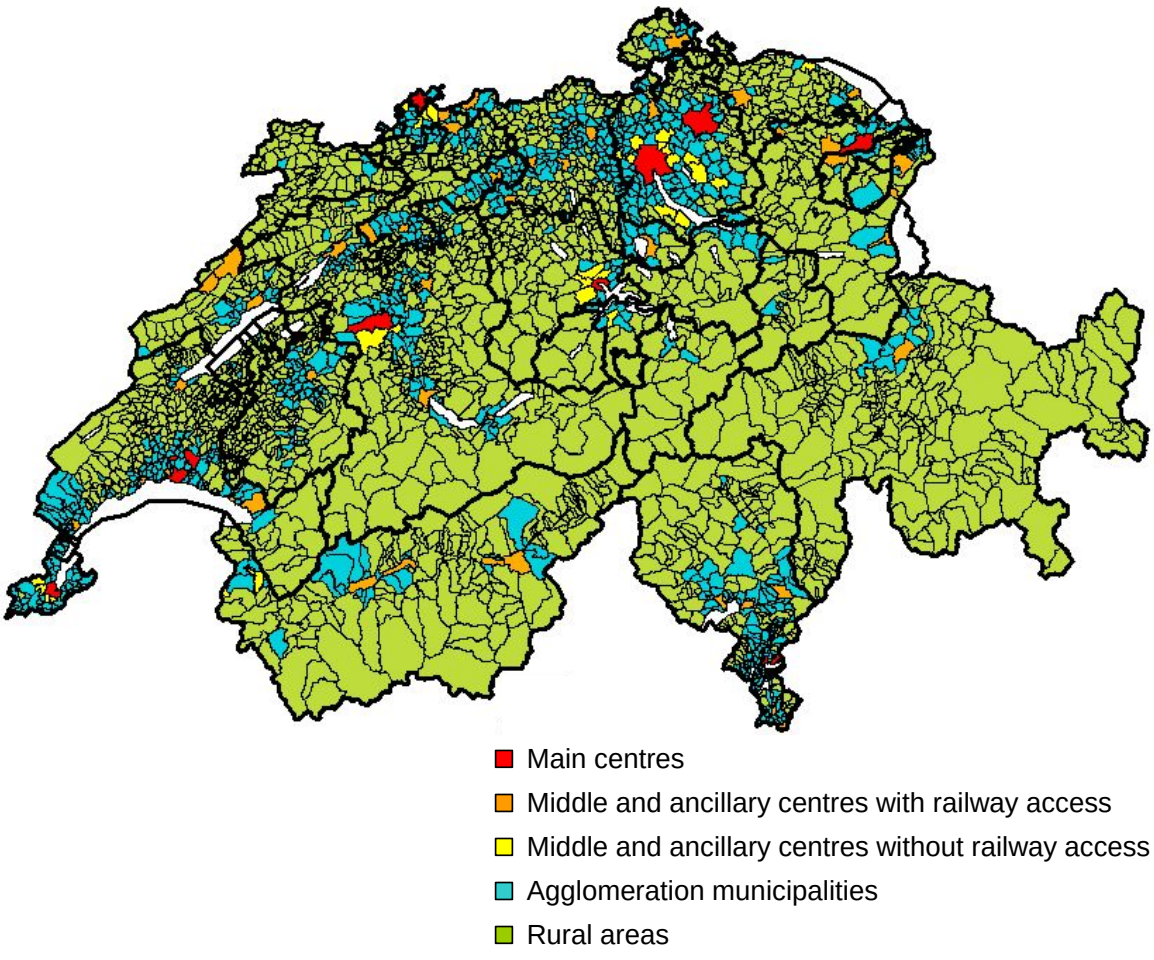
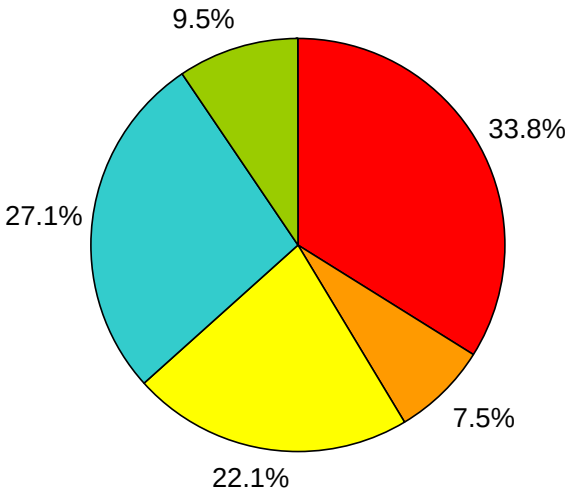


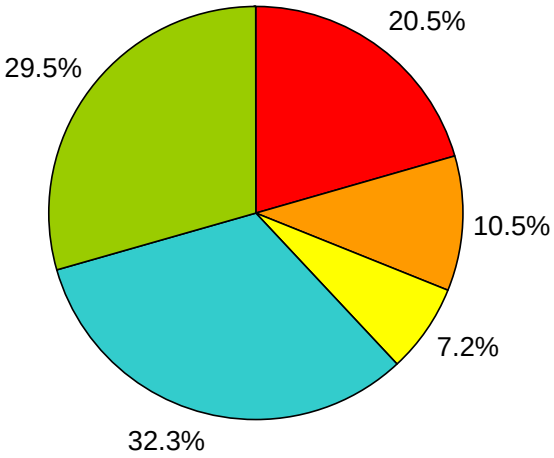
Figure 4 shows the share of respondents in regard to the spatial type of the residence place, on the one side for the retrospective survey and on the other side for the entire Swiss population.

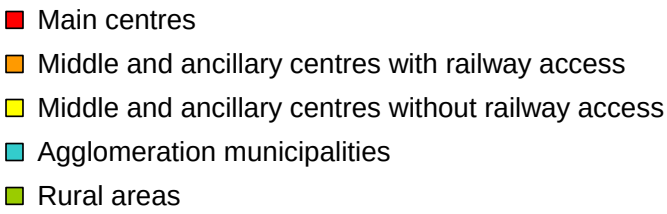
Figure 4 Share of respondents in regard to the spatial classification

Survey of mobility 2005:



Swiss population 2000:





According to the sampling, about one third of the respondents of the survey live in the main centres. Then the middle and ancillary centres as well as the agglomeration municipalities follow. The rural areas are only represented with 9.5%. This group is represented by persons that have moved within the last five years from one of the eleven study areas into another municipality of Switzerland.

Compared with the Swiss population the shares of the respondents living in the main centres as well as in the middle and ancillary centres without access to the national railway network are substantially higher in the survey, whereas the other three types, and especially the rural areas, show lower shares.

5. Results of the survey

5.1 Residential mobility of persons

In Table 3 the residential mobility of the respondents is shown in regard to the spatial classification. For each of the five types the number of yearly moves as well as the average residential duration is given.

Table 3 Residential mobility in regard to the spatial classification

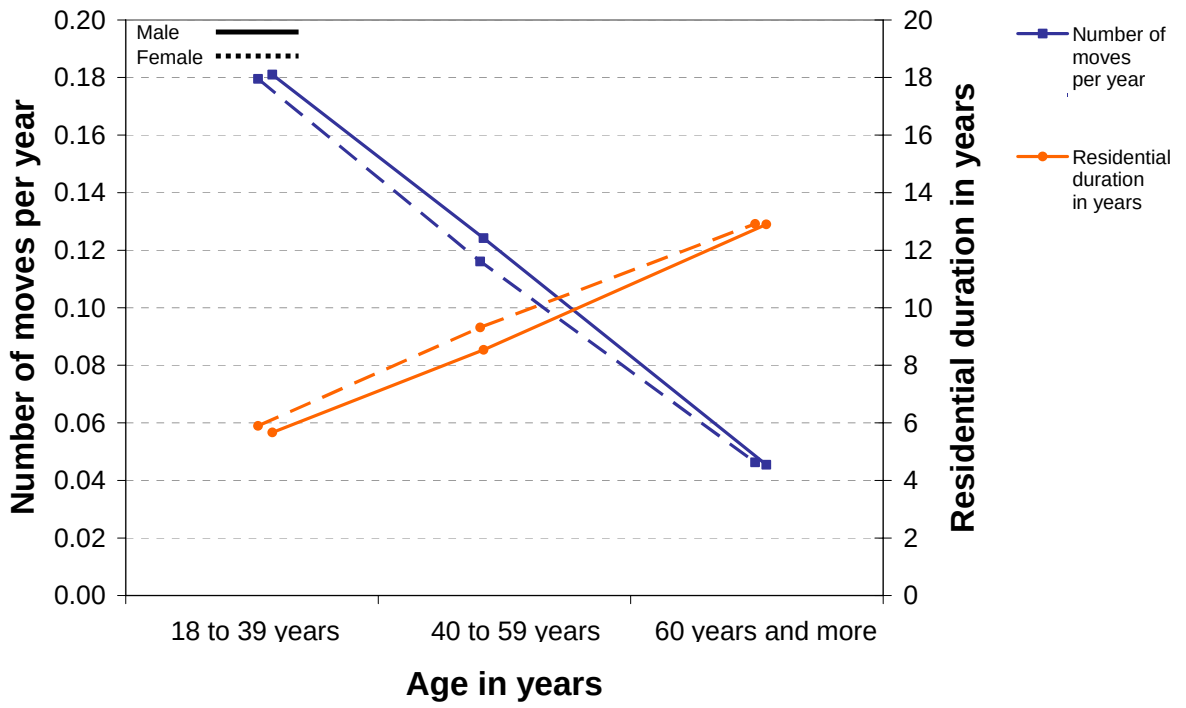
	Number of moves per year	Residential duration in years
Main centres	0.114	9.9
Middle and ancillary centres with railway access	0.138	7.1
Middle and ancillary centres without railway access	0.106	9.3
Agglomeration municipalities	0.165	6.5
Rural areas	0.121	8.1
OVERALL	0.124	8.7

Overall persons indicate on average 0.124 moves per year. The corresponding residential duration amounts to 8.7 years during the period from 1985 to 2004. In the municipalities of the agglomerations the moving rate is the highest, followed by the middle and ancillary centres with access to the national railway network. The residential durations show analogue results.

Figure 5 shows the residential mobility for the male and female respondents differentiated for three age groups.

Both genders are not significantly different from one another, whereas the three age groups show clear differences. With increasing age persons tend to move less and to longer stay at a place of residence.

Figure 5 Residential mobility in regard to gender and age

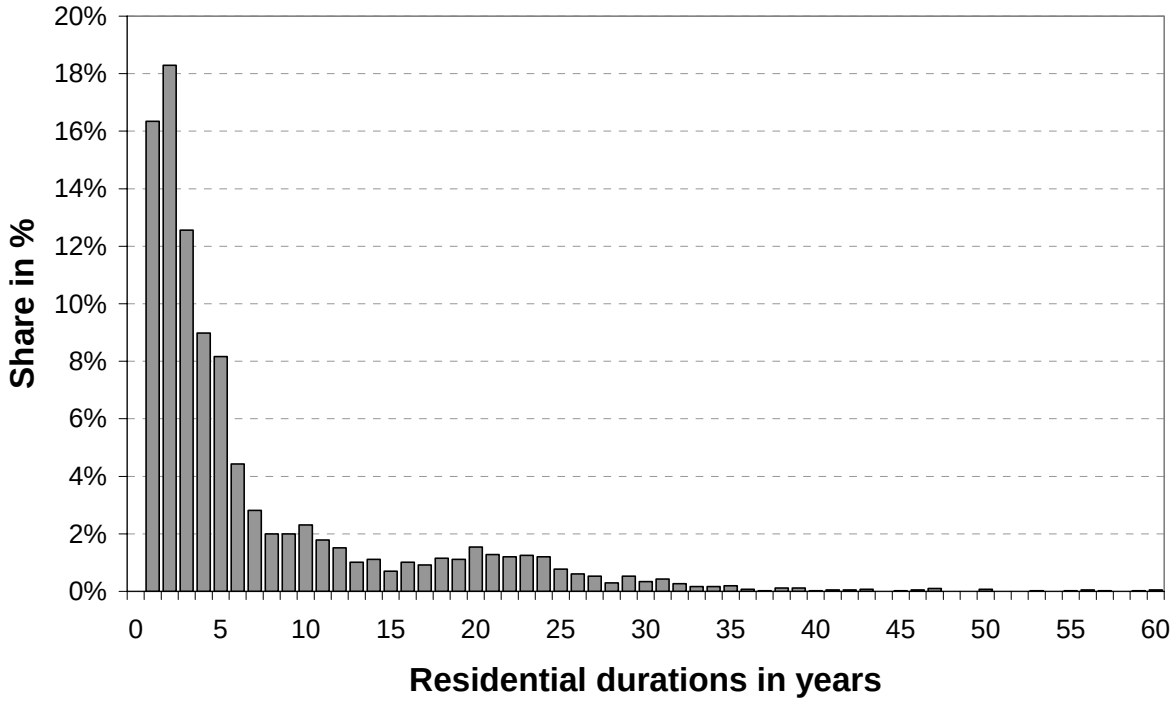


One way of describing life course dynamics is with the concepts of trajectory and transition. In this context the life course is seen as a sequence of events. By means of event history modelling it is possible to determine differences in timing, duration, rates of change and probabilities for the occurrence of certain events within a period of time as well as influencing variables. This method is now applied for the moving behaviour.

In Figure 6 the distribution of the residential durations during the last twenty years is shown.

Overall 4155 durations are observed between 1985 and 2004. On average these durations are 7.1 years long with a standard deviation of 8.6 years. Approximately two thirds of the durations are up to five years long.

Figure 6 Residential durations



In Table 4 the results of a hazard model for the residential durations are shown. For the different influencing variables the parameter, the level of significance as well as the hazard ratio are given. The hazard ratio is equivalent to the exponential parameter (Allison, 1995). For continuous variables it indicates the percentage change of the hazard rate, whereas for dichotomous variables it equals the proportion of the two corresponding hazard rates. The hazard rate thereby represents the probability or intensity of events occurring per time unit.

All shown influencing variables are highly significant. The average squared age has a positive influence on the residential duration. Driving licence and car ownership show opposed effects of each other. Persons with driving licences are more likely to change their place of residence. That also applies for the owners of the different public transport tickets. The household size has a negative hazard parameter. This means, that younger people and smaller households tend to move sooner. The hazard ratio for the number of persons living in the household indicates that an increase by one person leads to a decrease of the hazard rate by about 18%. The change of another place of residence during the observed period also affects the duration negatively. Persons with such a change have an over 50% higher hazard to move. Furthermore higher logarithmic population accessibility by public transport of the residential municipality increases the probability for staying there. In comparison to the German

speaking regions the French show a positive and the Italian a negative hazard parameter for moving. A change of the education place decreases the probability for changing the residence place, whereas persons in education are more likely to move. A change of employment as well as the duration already working at this employment place has a positive influence on the residential durations. The average travel distance by public transport between the residence and the employment place affects the duration in a negative way. With each kilometre increase the hazard rate rises by 0.4%.

Table 4 Results of the hazard model for the residential durations

Influencing variable	Parameter	Significance	Hazard ratio
Average age in years * average age in years	– 0.001	0.000	0.999
Average driving licence ownership	+ 0.384	0.000	1.468
Average car ownership	– 0.155	0.050	0.857
Average national annual ticket ownership	+ 0.305	0.001	1.356
Average regional annual / monthly ticket ownership	+ 0.148	0.016	1.160
Average half-fare discount ticket ownership	+ 0.138	0.011	1.148
Average number of persons in the household	– 0.200	0.000	0.818
Changes of residence place during the period	+ 0.435	0.000	1.545
LN (Population accessibility by public transport of the residential municipality)	– 0.109	0.000	0.897
German speaking region (referential category)		0.000	
French speaking region	+ 0.618	0.000	1.855
Italian speaking region	– 0.637	0.006	0.529
Changes of education place during the period	– 0.387	0.000	0.679
Share of time in education	+ 0.349	0.000	1.418
Changes of employment place during the period	– 0.192	0.000	0.826
Duration of employment at the beginning of the period in years	– 0.015	0.040	0.985
Average travel distance by public transport to employment place in kilometres	+ 0.004	0.000	1.004

Number of observed durations N = 3120 (2133 uncensored, 987 censored)

R^2 (generalised) = 0.293

Table 5 shows the directions of moving during the observed twenty year period from 1985 to 2004 in regard to the spatial transport classification.

Table 5 Directions of moving in regard to the spatial classification

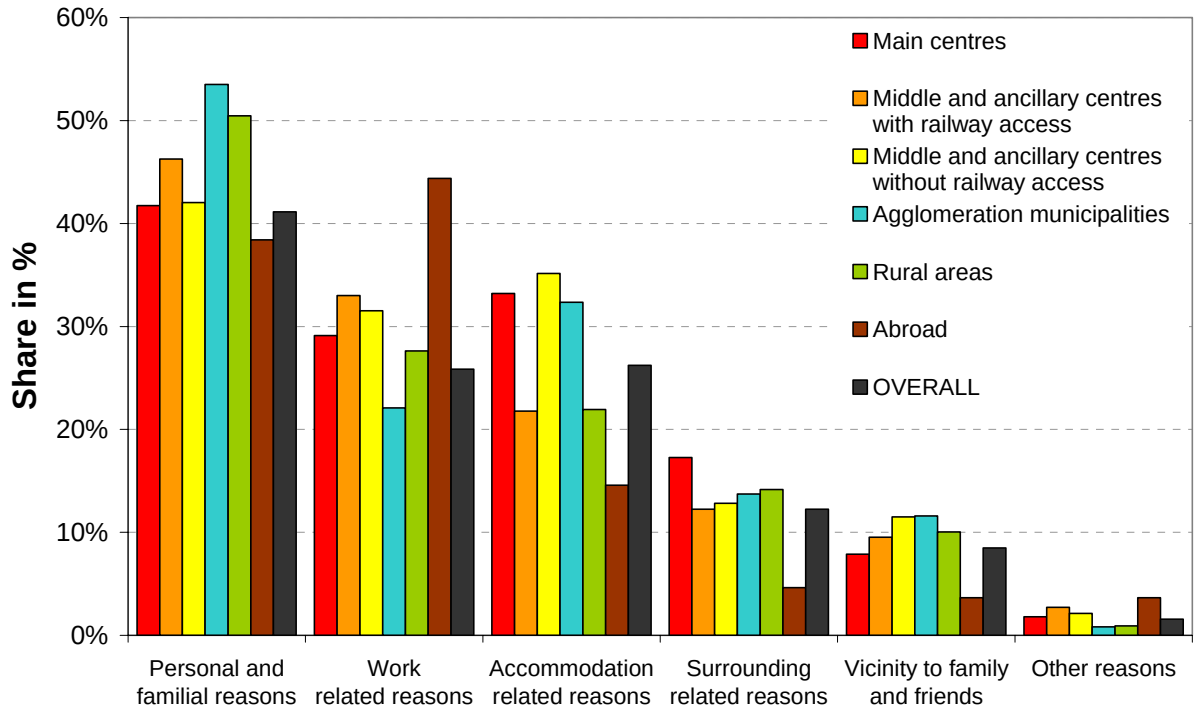
Previous residence place / Residence place	Type 1	Type 2	Type 3	Type 4	Type 5	Abroad	Un-known	OVER-ALL
Main centres	**36.1%**	3.8%	4.2%	10.9%	6.5%	6.5%	32.0%	100.0%
Middle and ancillary centres with railway access	10.9%	**23.8%**	5.4%	19.7%	11.2%	3.1%	25.9%	100.0%
Middle and ancillary centres without railway access	13.3%	1.1%	**27.9%**	17.2%	5.1%	5.3%	30.0%	100.0%
Agglomeration municipalities	11.8%	4.7%	11.0%	**29.9%**	5.3%	3.2%	34.2%	100.0%
Rural areas	6.4%	6.4%	5.0%	14.6%	**29.0%**	3.4%	35.2%	100.0%
Abroad	7.3%	2.6%	4.0%	6.3%	1.7%	**37.1%**	41.1%	100.0%
Unknown	10.1%	2.7%	1.7%	6.7%	3.2%	6.9%	68.6%	100.0%
OVERALL	17.0%	5.1%	9.1%	16.5%	8.0%	7.2%	37.0%	100.0%

Moves from one spatial type to the same one account for about one third of the moves. In this context the highest value for each type is found in the main diagonal. There are a high proportion of unknown residence places in the table. This is partly connected to the fact that from the first observed place the previous one is not known.

Figure 7 shows the reasons of moving indicated by the respondents. It was possible to specify multiple nominations.

In the first place personal and familial reasons with about 40% were given, followed by accommodation related reasons. These two categories are closely connected to one another. For instance, when children are born, the size of the family changes, and therefore the accommodation might become too small and a corresponding move occurs. Education and employment related reasons have a share of about 25%. This reason is especially important for moving abroad, whereas the other reasons play a subordinate role for this kind of moves.

Figure 7 Reasons of moving in regard to the spatial classification



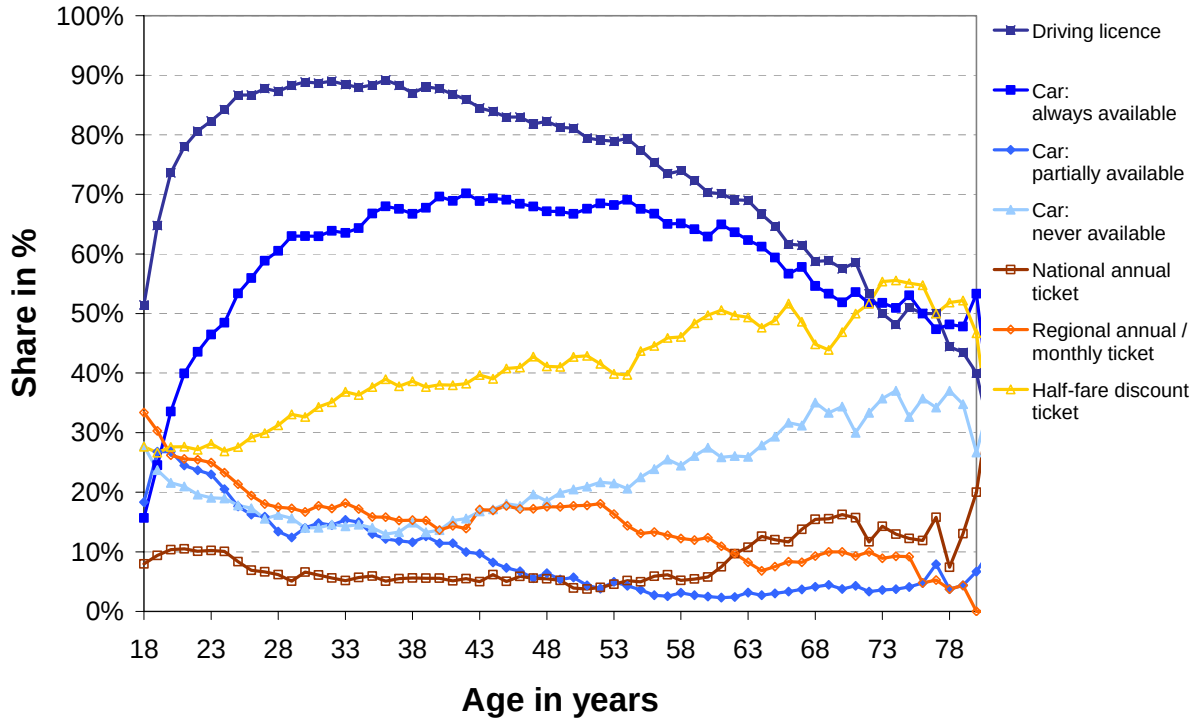
5.2 Mobility tool ownership of persons

The mobility tools considered in this survey are available cars and different public transport tickets, including national annual, regional annual and monthly tickets as well as half-fare discount tickets.

In Figure 8 and Figure 9 the ownership of mobility tools is shown for each tool separately and for occurring groups of tools respectively. The shares of ownership are represented on the one hand depending on the age and on the other hand depending on the observed time period from 1985 to 2004. In the first figure car ownership is divided into always, partially and never available cars, whereas in the second figure a car stands for an always or partially available car in contrast to non-availability of a car.

Figure 8 Mobility tool ownership for persons aged 18 years and older

Mobility tool ownership in regard to the age:



Mobility tool ownership in regard to the period from 1985 to 2004:

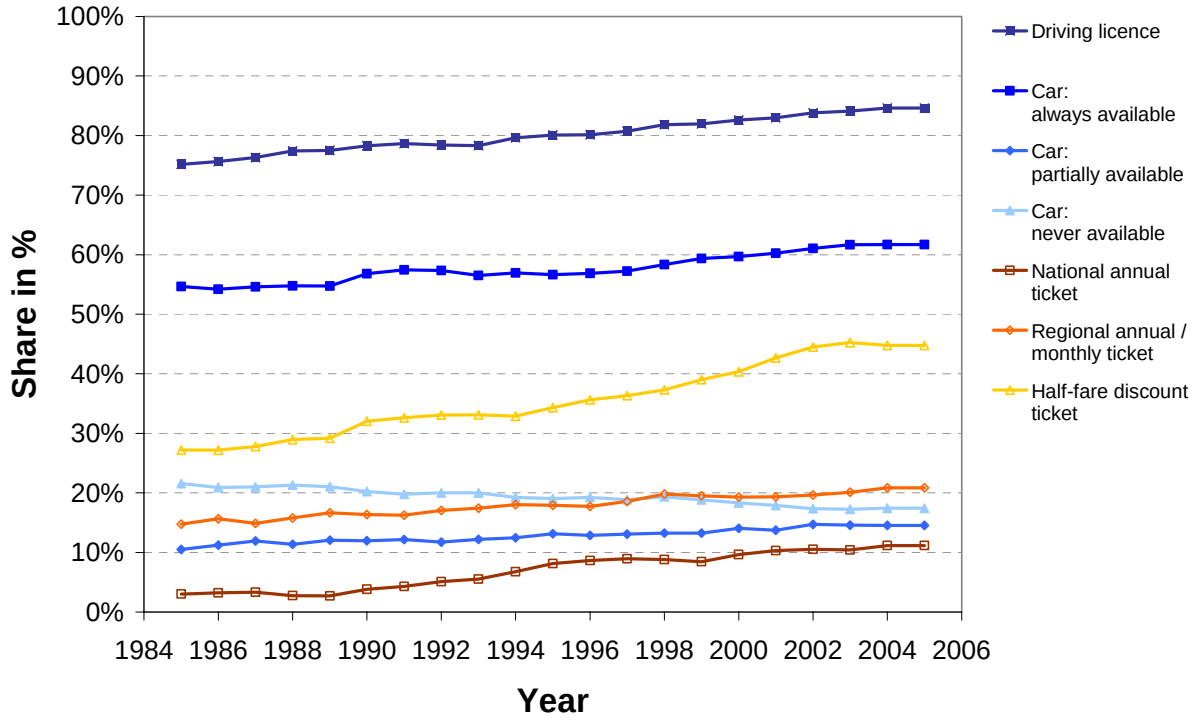
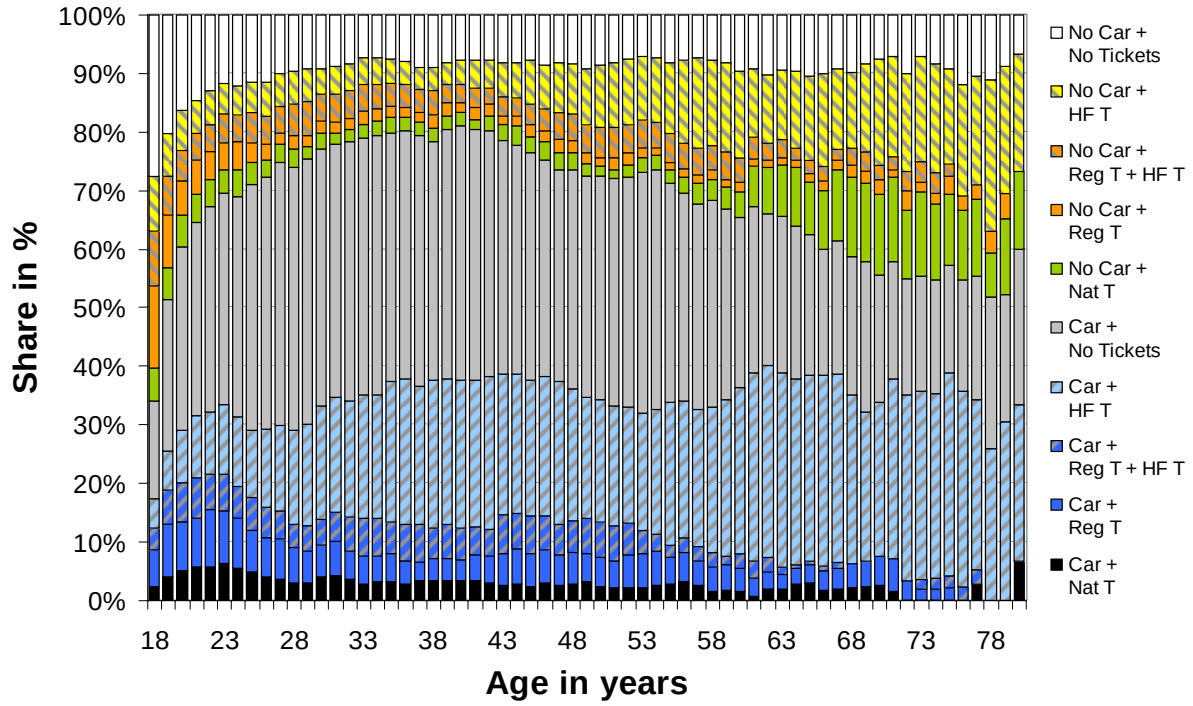
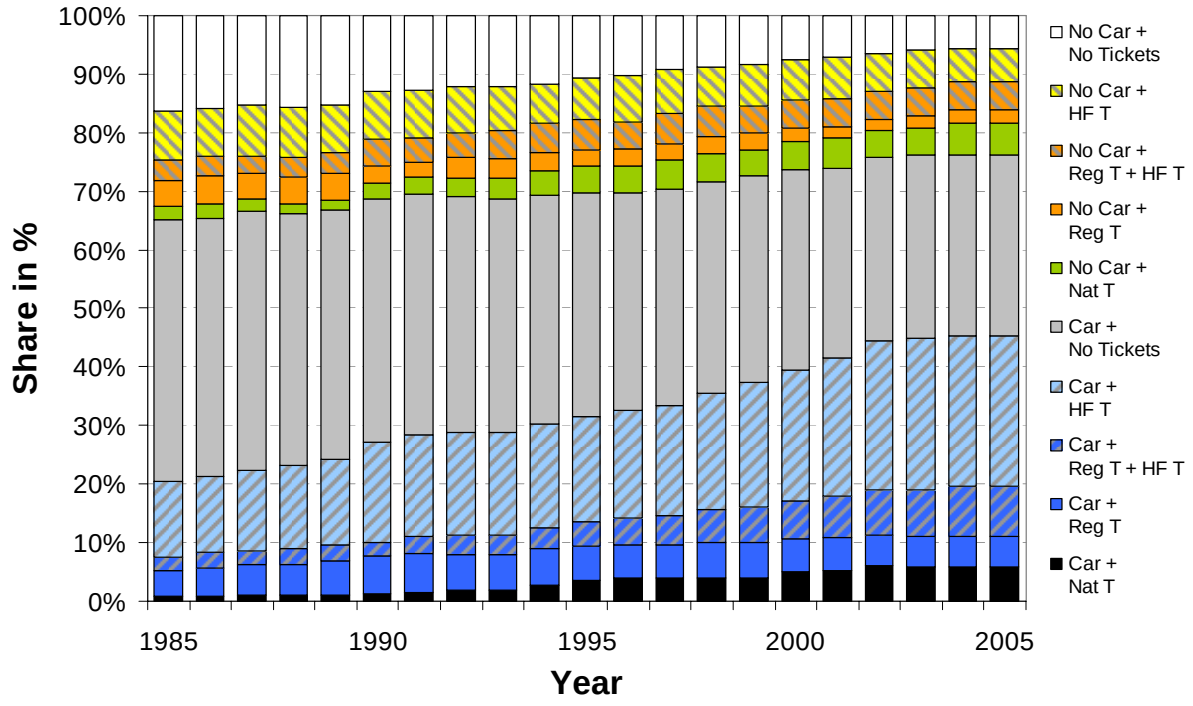


Figure 9 Mobility tool ownership in groups for persons aged 18 years and older

Mobility tool ownership in regard to the age:



Mobility tool ownership in regard to the period from 1985 to 2004:



The acquisition of driving licences rises strongly after reaching the age of 18 years. Persons aged from 25 to 45 years show the highest share with about 90%. Afterwards a slow decrease is noticeable. The ownership of cars is closely connected to this trend, especially the share of cars that are always available. Partially available cars are mostly found in the younger age groups with a subsequent decline the older the persons get. The ownership of national annual tickets increases over the life course, whereas the share of regional annual and monthly tickets decreases at the same time. The half-fare discount tickets show a growing proportion. During the twenty year period between 1985 and 2004 an increase is observed for the ownership of all mobility tools.

Considering the different mobility tools together similar developments are visible. Overall the ownership of mobility tools increases at the beginning and then remains relatively stable over the life course with only approximately 10% of persons not having any mobility tool at their disposal. About one third of the respondents own a car and public transport tickets at the same time. Thereby the share of national annual, regional annual and monthly tickets decreases with increasing age. The availability of only a car declines during the life course. This also applies for the development during the observed period from 1985 to 2004, whereas the share of car and public transport ticket owners increases from 20% to 45%. At the same time respondents without any mobility tools diminish during these twenty years.

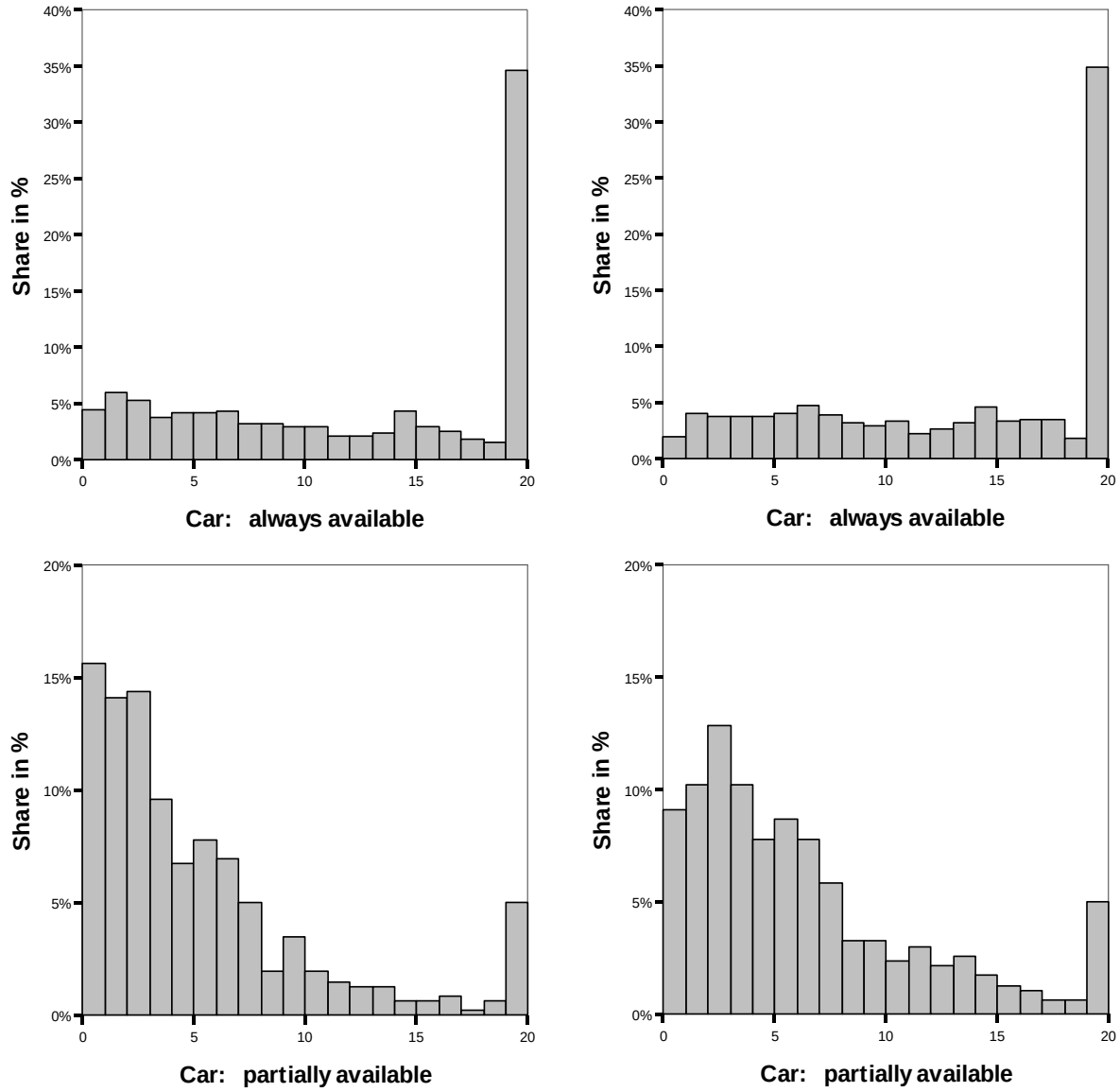
Figure 10 shows the observed durations of car availability and public transport ticket ownership. On the left side the single durations and on the right side the summarised durations over the twenty year period are given.

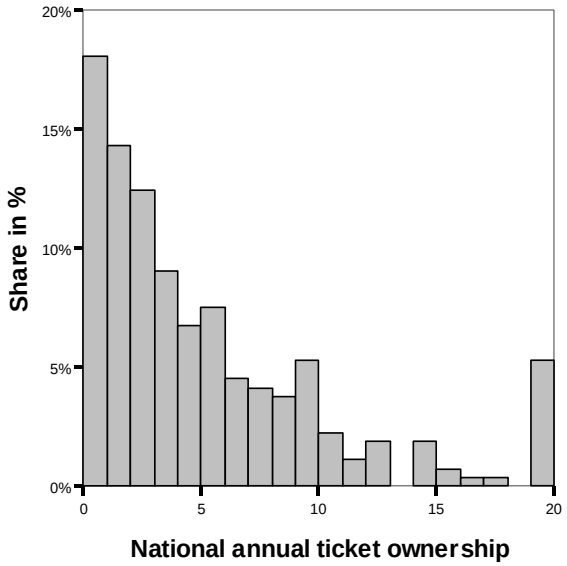
For about one third of the observed durations cars are always available over the whole period from 1985 to 2004. In this context the other duration lengths are relatively evenly distributed. Partial car availability is more often indicated for shorter periods of time with over 50% that are less than five years long and over 80% that are less than ten years long. Concerning the public transport tickets the ownership of national annual, regional annual and monthly tickets are left-skewed distributed showing the highest shares for durations shorter than five years. To a lesser extent this also applies for the half-fare discount ticket ownership. The differences between the single and the summarised durations are not very large and concern primarily the durations from half to three years. Overall the ownership of the different mobility tools is relatively stable over time, especially the availability of cars. The reason that for the public transport ticket ownership slightly more changes arise during the last twenty years is perhaps connected to the observed increase in ownership. So person without a public transport ticket at the beginning might later own one continuously until the end of the period. One indication

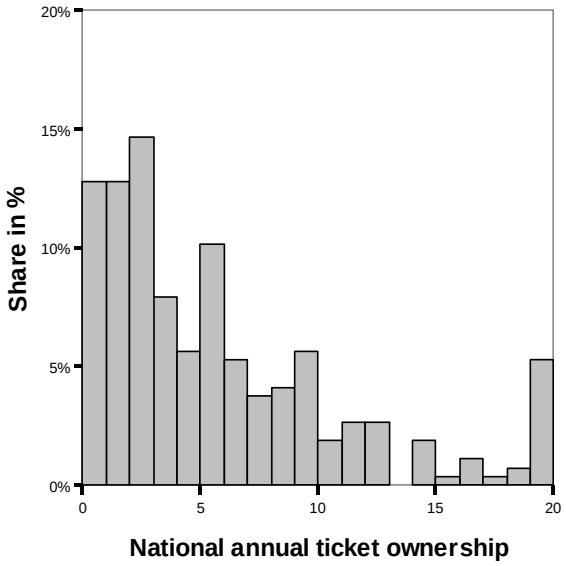
for that might be the rather small differences between the single and summarised durations. This stability in mobility tool ownership over longer periods of time was already found in other studies (Axhausen and Beige, 2003).

Figure 10 Mobility tool ownership durations

Single durations: Summarised durations:




Share in %
20%
15%
10%
5%
0%
0
5
10
15
20
National annual ticket ownership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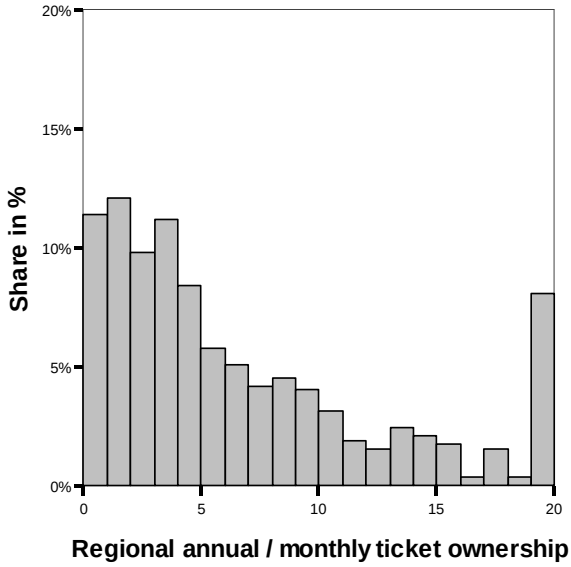
National annual ticket ownership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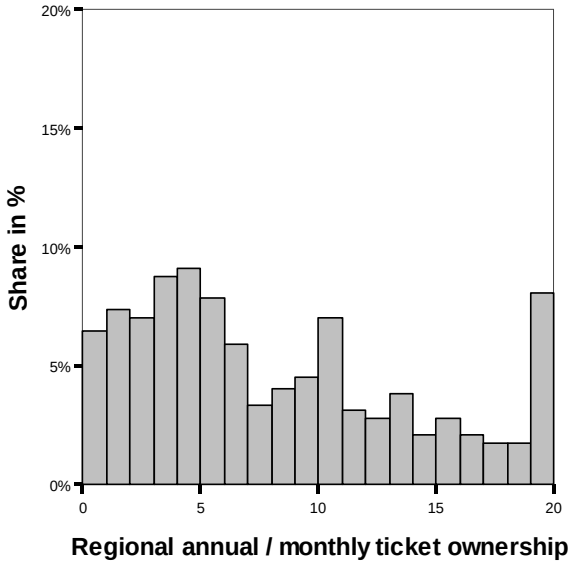
Regional annual / monthly ticket ownership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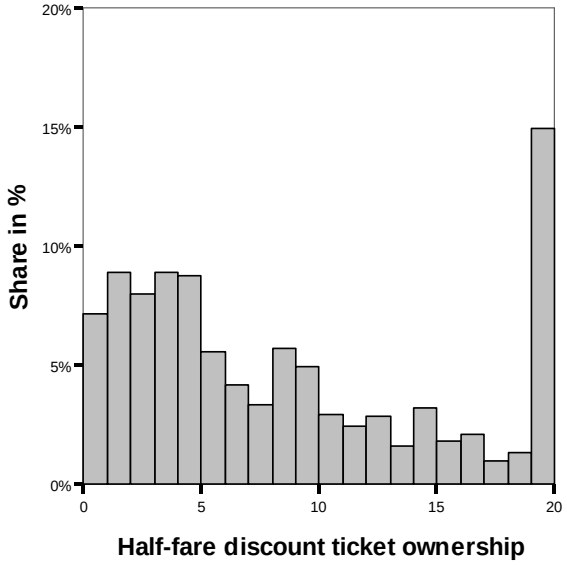
Regional annual / monthly ticket ownership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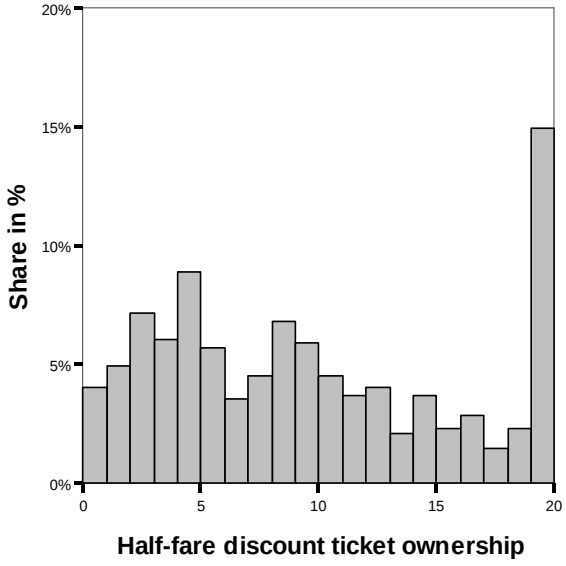
Half-fare discount ticket ownership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Half-fare discount ticket ownership

In Table 6 the hazard ratios of hazard models for the different mobility tool ownership durations are shown. All influencing variables are significant at a 95%-level.

The durations of car availability are positively influenced by the average age of the respondents and the household size. Occurring changes of the residence, education and employment places also decrease the hazard of variations in car availability. The speed of private transport in the residential municipality affects the duration negatively and the speed of public transport positively. Both results are contrary to the expectations. Persons with a higher monthly income show shorter durations of always available cars. Concerning the different tickets of public transport their ownership is also positively influenced by the average age of the respondents and the household size. A higher number of changes in residence, education and employment lead to lower hazard rates as well. Furthermore the durations of regional annual and monthly ticket ownership are negatively affected by average time in education and employment during the period. This means that persons in education and employment tend to change their ownership sooner. For the half-fare discount tickets there is a negative influence on the variations in ownership noticeable of the logarithmic population accessibility by public transport as well as of the speed of private transport in the residential municipality. At the same time respondents with a higher income are more likely to change their half-fare discount ticket ownership.

Table 6 Hazard ratios of the hazard models for the mobility tool ownership durations

Influencing variable (Average values for the observed period)	Car: always available	Car: partially available	National annual ticket ownership	Regional annual / monthly ticket ownership	Half-fare discount ticket ownership
Age in years	0.756	0.918	0.903	0.931	0.929
Age in years * age in years	1.002				
Age in years * gender (male)			0.985		
Regional annual and monthly ticket ownership					0.595
Half-fare discount ticket ownership	2.249				
Number of persons in the household	0.586	0.836		0.862	0.854
Changes of residence place	0.474	0.636	0.739	0.626	0.709
LN (Population accessibility by public transport of the residential municipality)					0.657
Speed of private transport in the residential municipality in km/h		1.030			0.958
Speed of public transport in the residential municipality in km/h	0.954				
Changes of education place		0.680	0.506	0.672	
Share of time in education	0.237			2.232	0.823
Linear distance between residence and education place in kilometres				1.005	0.776
Transfers by public transport to education place		0.645			
Changes of employment place		0.827		0.857	
Share of time in employment				2.268	
Travel time by public transport to employment place in minutes				0.992	
Transfers by public transport to employment place				2.294	
Monthly income in Fr.	1.000				1.000
Number of observed durations	728	374	248	494	663
R^2 (generalised)	0.273	0.410	0.442	0.411	0.336

6. Conclusions

The analyses concerning the residential mobility show that the residential durations observed during the period from 1985 to 2004 are on average 7.1 years long with approximately two thirds of the durations being up to five years long. The time that the respondents stay at a place of residence between successive moves is significantly influenced by the average squared age during this stay, the mobility tool ownership, the household size as well as by changes of another residence place and variables describing the residential municipality. Furthermore changes of education and employment places during the period as well as corresponding variables show clear effects.

Concerning the mobility tool ownership an increase is observed for the ownership of all mobility tools over the last twenty years. At the same time the respondents indicate that both car availability and the ownership of the different public transport tickets are relatively stable over time without many occurring changes. The hazard models for the ownership durations show a significant influence of the age of the respondents and the household size. Changes of the residence, education and employment places have a negative effect on occurring variations in mobility tool ownership.

So there exists a strong interrelation between these two aspects of long-term spatial mobility. The residential mobility is influenced by the ownership of the different mobility tools and vice versa.

The presented results are results of first analyses. The next step will be to combine the two aspects of long-term spatial mobility together using further developments in duration modelling. These include the estimation of more flexible hazard models with the form of discrete choice models that allow for inter-individual and intra-individual variability of people (Bhat, 2003; Bhat, Srinivasan und Axhausen, 2003).

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Appendixes

A 1 Household form

A 2 Person form

Part 1: Household form

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Please fill in the address of your place of residence.

Street and house number			
Post code		Municipality	

For each person of your household, please fill in the year of birth, the sex and the current place of education or employment and indicate whether it is a place of education or employment.

Year of birth	Sex		Current place of employment or education		
	Male	Female	Post code	Municipality	
	☐	☐			☐ Education ☐ Employment
	☐	☐			☐ Education ☐ Employment
	☐	☐			☐ Education ☐ Employment
	☐	☐			☐ Education ☐ Employment
	☐	☐			☐ Education ☐ Employment
	☐	☐			☐ Education ☐ Employment
	☐	☐			☐ Education ☐ Employment
	☐	☐			☐ Education ☐ Employment
	☐	☐			☐ Education ☐ Employment

What is the gross income per month of your household?

☐ Under 2 000 CHF	☐ 8 000 to 9 999 CHF
☐ 2 000 to 3 999 CHF	☐ 10 000 to 11 999 CHF
☐ 4 000 to 5 999 CHF	☐ 12 000 to 13 999 CHF
☐ 6 000 to 7 999 CHF	☐ 14 000 CHF and more

How many vehicles has your household at its disposal?

	Cars	☐ No cars		Motorcycles with more than 125 ccm	☐ No motorcycles
	Operable bicycles	☐ No bicycles		Small motorcycles with less than 125 ccm	☐ No small motorcycles

Part 2: Person form

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

When were you born?

Month ____ Year ____

Are you …

☐ Male ☐ Female

Are you …

☐ Swiss national
☐ Other nationality, namely ____

Which qualifications have you aquired? (Tick all, which apply)

☐ Primary school ☐ Apprenticeship ☐ University of applied sciences degree
☐ Secondary school ☐ Baccalauréat ☐ University degree/ETH degree

Are you … (Tick all, which apply)

☐ Full-time employed ☐ In education or apprenticeship ☐ Home duties
☐ Part-time employed ☐ Job-seeking ☐ Retired

What type of education or employment are you mainly engaged in?

Education ____

Employment ____

How many hours are you in education or employment engaged?

Education ____ Hours

Employment ____ Hours

What is the exact address of your current place of education or employment?
Please indicate post code, municipality, street and house number.

Education ____

Employment ____

How long do you need or would you need for the trip (from door to door) to your place of education or employment if you were to use ...

	Trip to education	Trip to employment
Only a car?	Circa ____ Minutes	Circa ____ Minutes
Only public transport?	Circa ____ Minutes	Circa ____ Minutes
Trip is not possible with public transport.	☐	☐

Do you own a driving licence for cars? If yes, since when?

☐ No ☐ Yes

Year of acquisition ____

How often is a car available to you?

☐ Always ☐ Frequently ☐ Infrequently ☐ Never ☐ Via car sharing

How satisfied are you …

	Very satisfied 1	2	3	4	5	6	7	8	9	Very dissatisfied 10
With your health?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
With your accommodation?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
With your work?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
With your leisure time?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
With the condition of the environment in your region?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
With your life overall?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Will you move within the next year?

☐ Very likely ☐ Likely ☐ Unlikely ☐ Very unlikely

Questions about your residential history

Please fill in the following life course calendar for the time between 1985 and 2004.
Please note:

- There is an **example** of a filled in life course calendar on the next page.
- On the following pages you find two life course calendars. Please fill in **one** of them. The second one is meant as a reserve exemplar in case, that corrections make the first one too difficult to read and understand. In this case please cross out the first one clearly.
- It might be easier, if you start by entering important events of the family history (e.g. birth of siblings, moving out of your parents` house, marriage, divorce, birth of children, deaths in the family, retirement, etc.).
  It might also help to start with later events and then proceed backwards.
- The main interest of this survey is your residential history during the last twenty years. Therefore please mark your moves clearly, number the places of residence and answer the further questions for the different places of residence on page 8. In case the five given places there are not sufficient, please choose the five most important places of residence and note down the number of the place of residence from the life course calendar.
- The questions concerning the different places of residence also include the exact address, preferably as post code, municipality, street and house number. If you can not remember the address exactly, please enter the name of the municipality and in case of bigger towns the name of the district.
- If you were living abroad during the time between 1985 and 2004, we are also interested in the information about your residences there.

When did you move the last time before 1985?

☐ Year of the last move before 1985

☐ I did not move before 1985.

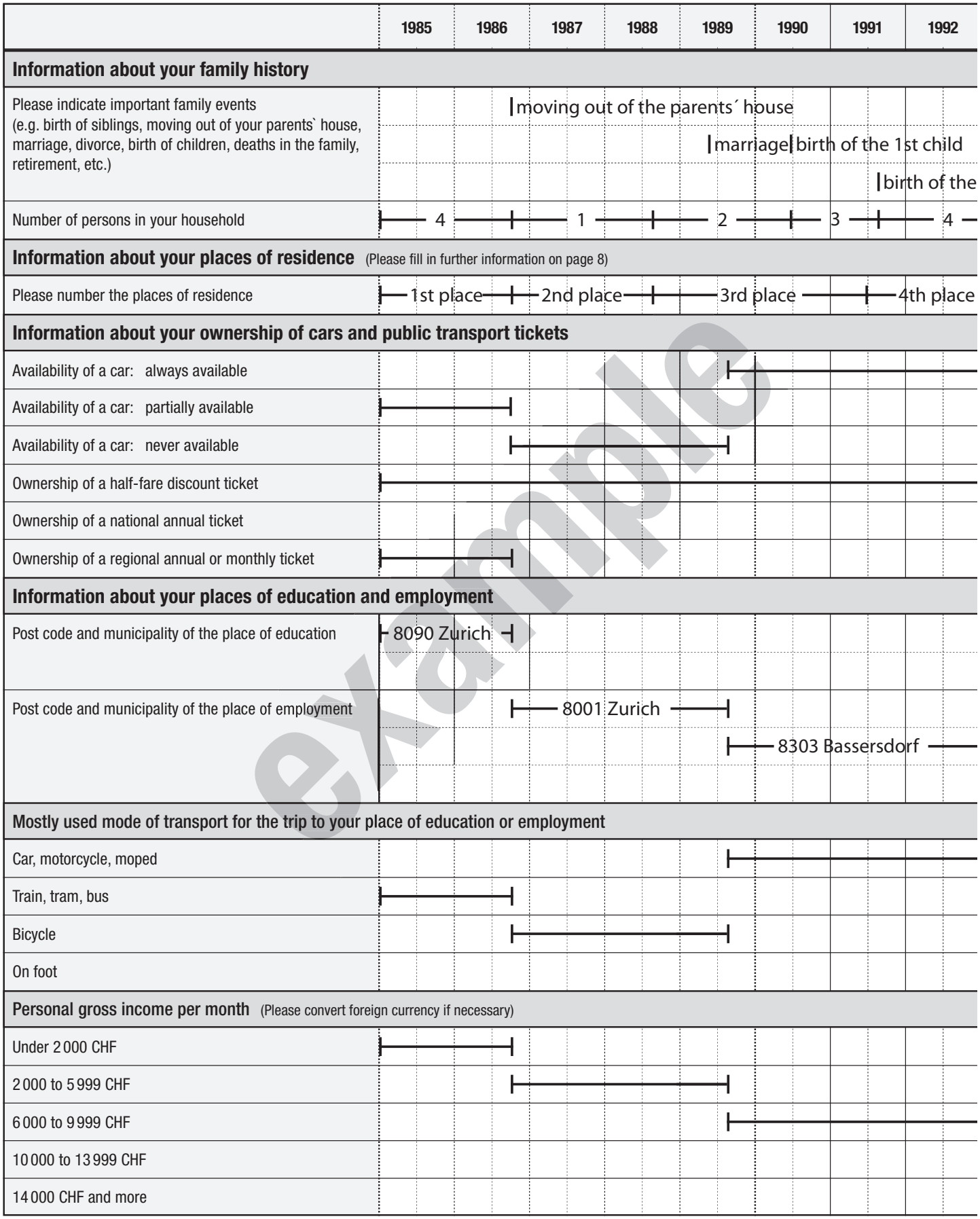
When did you change your place of education or employment the last time before 1985?

☐ Year of the last change of the place of education or employment before 1985

☐ I did not change the place of education or employment before 1985.

☐ I was not engaged in any education or employment before 1985.

Example of a filled in life course calendar



Life course calendar

Please consider the hints on page 2.

	1985	1986	1987	1988	1989	1990	1991	19
Information about your family history								
Please indicate important family events (e.g. birth of siblings, moving out of your parents` house, marriage, divorce, birth of children, deaths in the family, retirement, etc.)								
Number of persons in your household								
Information about your places of residence (Please fill in further information on page 8)								
Please number the places of residence								
Information about your ownership of cars and public transport tickets								
Availability of a car: always available								
Availability of a car: partially available								
Availability of a car: never available								
Ownership of a half-fare discount ticket								
Ownership of a national annual ticket								
Ownership of a regional annual or monthly ticket								
Information about your places of education and employment								
Post code and municipality of the place of education								
Post code and municipality of the place of employment								
Mostly used mode of transport for the trip to your place of education or employment								
Car, motorcycle, moped								
Train, tram, bus								
Bicycle								
On foot								
Personal gross income per month (Please convert foreign currency if necessary)								
Under 2 000 CHF								
2 000 to 5 999 CHF								
6 000 to 9 999 CHF								
10 000 to 13 999 CHF								
14 000 CHF and more								

92	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004

Life course calendar (reserve exemplar)

Please consider the hints on page 2.

	1985	1986	1987	1988	1989	1990	1991	19
Information about your family history								
Please indicate important family events (e.g. birth of siblings, moving out of your parents` house, marriage, divorce, birth of children, deaths in the family, retirement, etc.)								
Number of persons in your household								
Information about your places of residence (Please fill in further information on page 8)								
Please number the places of residence								
Information about your ownership of cars and public transport tickets								
Availability of a car: always available								
Availability of a car: partially available								
Availability of a car: never available								
Ownership of a half-fare discount ticket								
Ownership of a national annual ticket								
Ownership of a regional annual or monthly ticket								
Information about your places of education and employment								
Post code and municipality of the place of education								
Post code and municipality of the place of employment								
Mostly used mode of transport for the trip to your place of education or employment								
Car, motorcycle, moped								
Train, tram, bus								
Bicycle								
On foot								
Personal gross income per month (Please convert foreign currency if necessary)								
Under 2 000 CHF								
2 000 to 5 999 CHF								
6 000 to 9 999 CHF								
10 000 to 13 999 CHF								
14 000 CHF and more								

92	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004

Please fill in further information about your (most important) places of residence since 1985.

	1st place of residence	2nd place of residence
Please fill in the address (post code, municipality, street and house number) of the place of residence.		
Why did you move there? (Tick all, which apply)	☐ Family reasons ☐ Work related reasons ☐ Accommodation related reasons ☐ Quality of surrounding environment ☐ Vicinity to family and friends ☐ Other	☐ Family reasons ☐ Work related reasons ☐ Accommodation related reasons ☐ Quality of surrounding environment ☐ Vicinity to family and friends ☐ Other
What type of household did you live in after the move.	☐ Single-person household ☐ Family/Couples without children ☐ Non-family household	☐ Single-person household ☐ Family/Couples without children ☐ Non-family household
Did you rent or own the accommodation? And how high were the costs? Please enter the rent per month or the rental value for property per year.	☐ Rent CHF per month ☐ Rental value CHF per year	☐ Rent CHF per month ☐ Rental value CHF per year
How many inhabitable rooms had the place of residence?	Inhabitable rooms	Inhabitable rooms

	3rd place of residence	4th place of residence	5th place of residence
	☐ Family reasons ☐ Work related reasons ☐ Accommodation related reasons ☐ Quality of surrounding environment ☐ Vicinity to family and friends ☐ Other	☐ Family reasons ☐ Work related reasons ☐ Accommodation related reasons ☐ Quality of surrounding environment ☐ Vicinity to family and friends ☐ Other	☐ Family reasons ☐ Work related reasons ☐ Accommodation related reasons ☐ Quality of surrounding environment ☐ Vicinity to family and friends ☐ Other
	☐ Single-person household ☐ Family/Couples without children ☐ Non-family household	☐ Single-person household ☐ Family/Couples without children ☐ Non-family household	☐ Single-person household ☐ Family/Couples without children ☐ Non-family household
	☐ Rent CHF per month ☐ Rental value CHF per year	☐ Rent CHF per month ☐ Rental value CHF per year	☐ Rent CHF per month ☐ Rental value CHF per year
	Inhabitable rooms	Inhabitable rooms	Inhabitable rooms

Thank you very much for your assistance!