

**Moving through nets: The physical and social dimensions
of travel**

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Methodological Advances in National Travel Surveys: Mobility in Germany 2002

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Mobility in Germany 2002: Contents of Presentation



- **Approach and survey Design**
- **Field results**
- **Nonresponse-study**
- **Some results**
- **Reporting and data dissemination**

Mobility in Germany 2002: Approach

PILOT STUDY

- nation-wide random sample from registries of residents by types of region (BBR), 32 municipalities
- development of the survey instruments
- decisions concerning core components and options
- experimental design (2,400 households)
- including a combination of different survey methods
 - (mail only and a mixed mode by phone/mail)
- comparison of different versions
- selectivity analyses
- determination of the method concerning the main study



MAIN SURVEY (autumn 2001 to summer 2003)

- size of random sample net 25,000 households based on registries of residents
- states or regions add-on by app. another 24,000 households
- collection of information of the whole household
- survey guided by fixed diary-dates and lasting 12 months
- non-response-study

Mobility in Germany 2002: Innovations



- use of sample based on registries of residents
- transparent presentation of field process
- mixed mode of mail survey and telephone survey
- data acquisition in individual matrix and route matrix
- questioning of all individuals in household
(children under 13 years of age by parental substitute)
- detailed acquisition of route destinations in order to implement geocoding
- data linkage for economic transport survey KID-motor traffic in Germany
- provision of differentiated information about routes' purpose
- frequently updated information about the project under www.kontiv2002.de

Mobility in Germany 2002: Innovations



Sample and Method

- stratified random sampling from registers
- mixed mode CATI/SAQ
- reliable information on response
- analysis of selectivity
- extended non-response-study
- field information

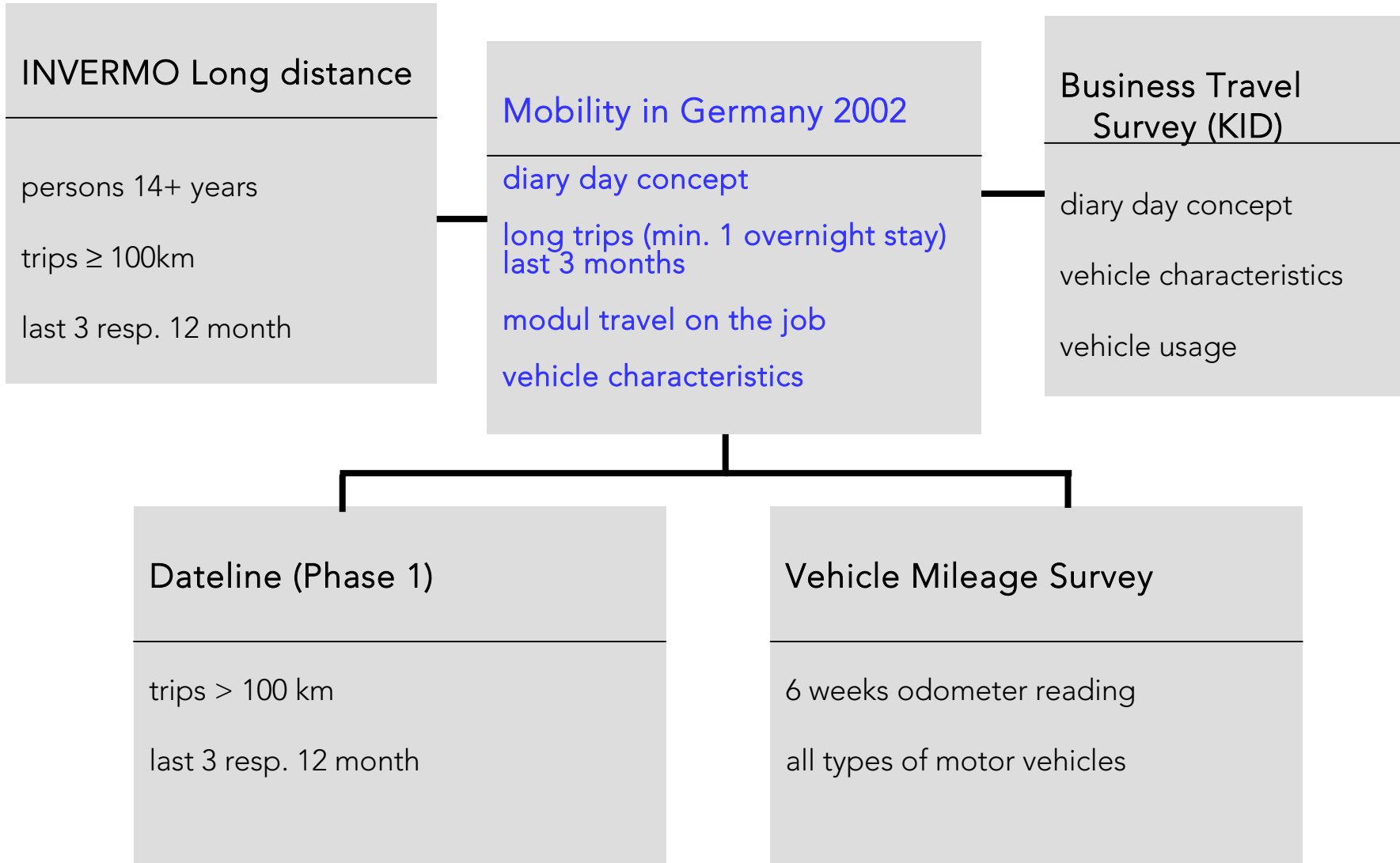
Households

- foreigners
- children
- vehicle data
- handicaps
- income

Mobility

- professional mobility
- long distance trips
- vehicle mileage
- full household context
- trip details
- trip end geocoding
- reasons zero trips

Mobility in Germany 2002: Linkages to other current Surveys



Mobility in Germany 2002: Field Results

National Sample

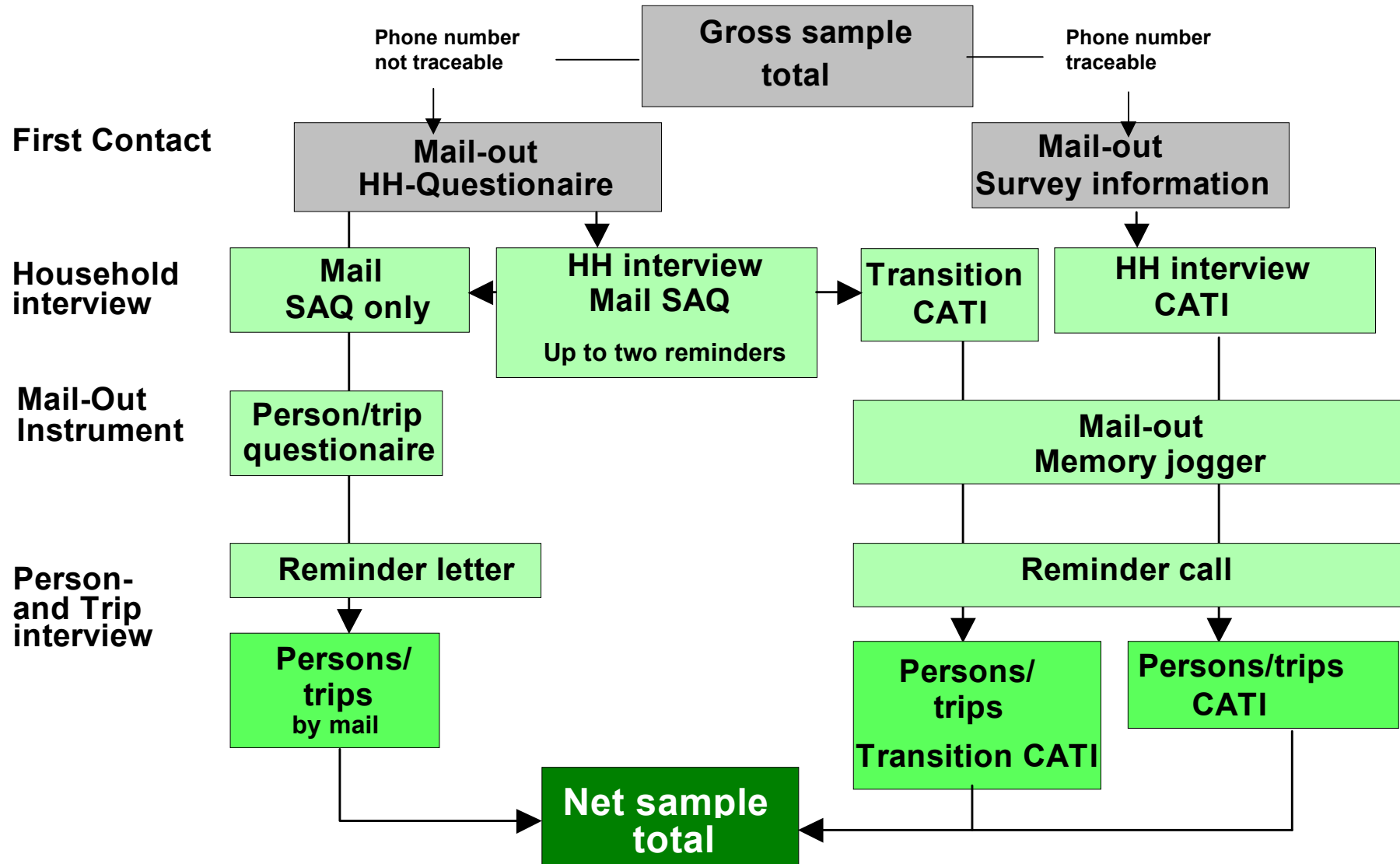
	Number of Interviews*	Planned net	In %
Schleswig-Holstein	1.019	1.000	101,9
Hamburg	784	750	104,5
Niedersachsen	2.542	2.500	101,7
Bremen	766	750	102,1
Nordrhein-Westfalen	4.156	4.000	103,9
Hessen	2.241	2.200	101,9
Rheinland-Pfalz	1.438	1.400	102,7
Baden-Württemberg	2.593	2.500	103,7
Bayern	2.651	2.500	106,0
Saarland	775	750	103,3
Berlin	1.354	1.300	104,2
Brandenburg	1.045	1.000	104,5
Mecklenburg-Vorpommern	739	750	98,5
Sachsen	1.683	1.600	105,2
Sachsen-Anhalt	1.015	1.000	101,5
Thüringen	1.047	1.000	104,7
Total (National Sample)	25.848	25.000	103,4

Regional Add-Ons

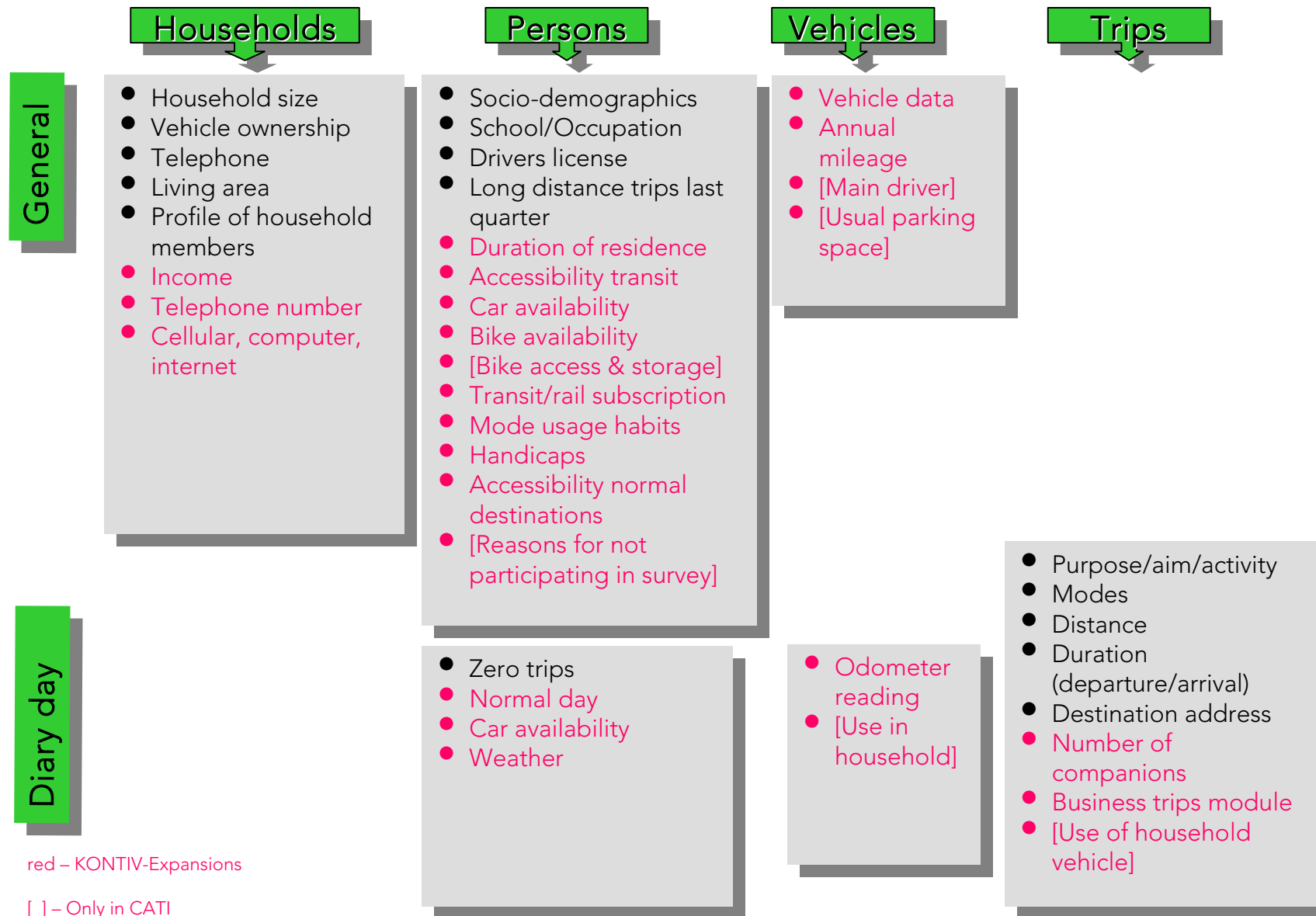
Hamburg Stadtgebiet	750	750	100,0
Hamburg Umland	1.268	1.250	101,4
Bremen Stadtgebiet	781	750	104,1
Bremen Umland	1.041	1.000	104,1
Region Hannover	4.082	4.000	102,1
Mecklenburg-Vorpommern	1.007	1.000	100,7
Nordrhein-Westfalen	4.154	4.000	103,9
Rheinland-Pfalz	1.079	1.000	107,9
Hessen	6.520	6.050	107,8
Thüringen	1.005	1.000	100,5
Stadt München	3.375	3.300	102,3
Total (Regional Add-Ons)	25.062	24.100	104,0

* As defined by the 50 % rule

Mobility in Germany 2002: Survey Process



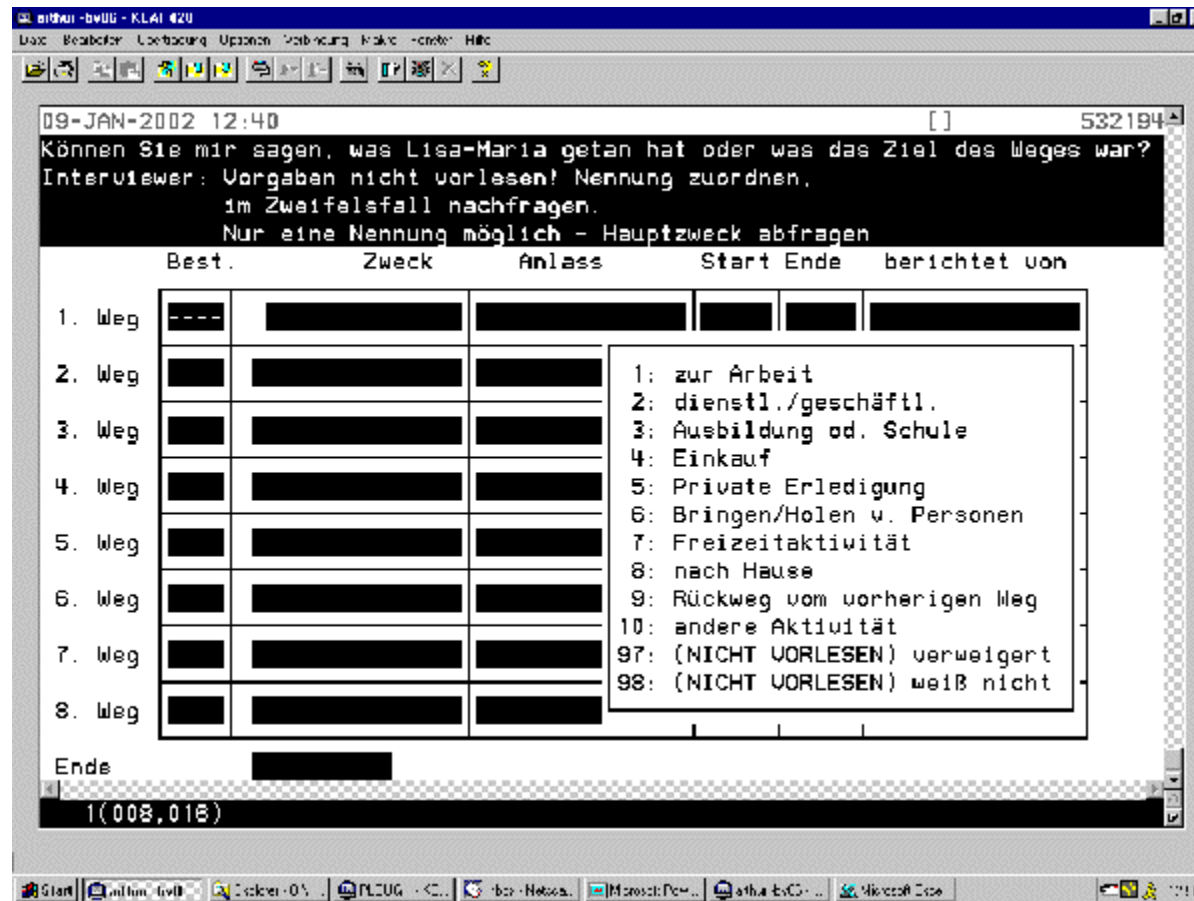
Mobility in Germany 2002: Survey Contents



red – KONTIV-Expansions

[] – Only in CATI

Mobility in Germany 2002: CATI-Instrument



Acquiring the routes by phone, the interaction between interviewer and target person is crucial. Unlike the mail interview, a better comprehensibility of the daily routine is given. Additionally, inquiries are made concerning forgotten routes - those are mainly short walks like e.g. early morning walk to a bread shop or jogging path.

First of all, the data acquisition mask of the interviewer provides a rough recording of all routes during the day. Forgotten routes can be added later and are listed automatically into the time schedule. The CATI-programme enables the interviewer as well to notice forgotten ways back and to inquire specifically. These opportunities are lacking in a mail survey, to the data quality's disadvantage.

Mobility in Germany 2002: Geocoding as a New Feature



AUFNAHME DES AUSGANGSPUNKTES

Können Sie mir sagen, wo Ihr erster Weg begann? Nennen Sie mir bitte den Ort und die Straße!

verweigert = -7 / weiß nicht = -8 / Bremen = -0

Gemeinde: PLZ:

Straße: Hausnummer:

nächstgrößere Straße:

markante Bezeichnung:

weiter:

1(010,012)

As basis for the geocoding, the starting and destination's addresses of each route are recorded as detailed as possible. If it is impossible to obtain detailed information, at least rough data will be recorded.

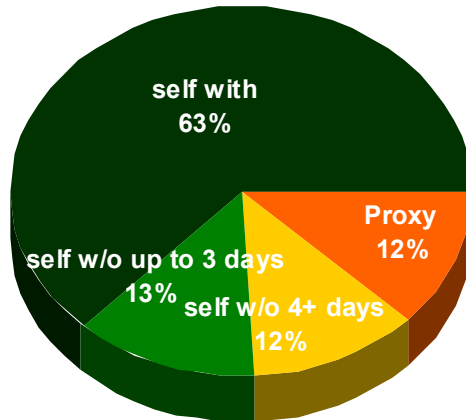
Concerning the analyses, the data protection laws must be taken into account. The collected addresses must not admit conclusions about single individuals. Therefore, the exact data is only used to pass on further information - e.g. the walking distance to the next bus stop. Thus,

the final data set consists only of the information about stop and distance, yet not the exact address.

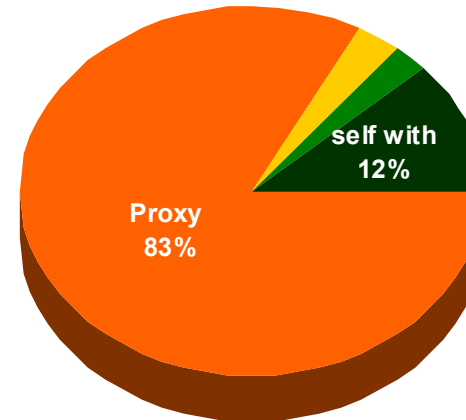
Mobility in Germany 2002: Person and Trip Interview by Age Group – Self / Proxy - with / without Jogger



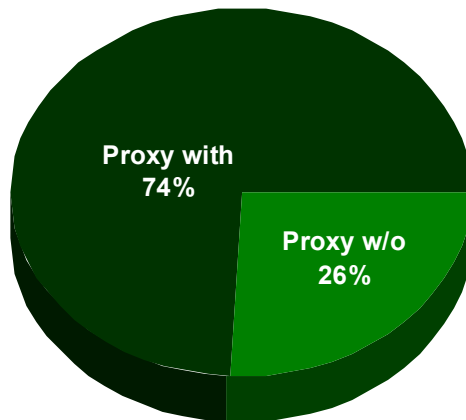
14 Years up



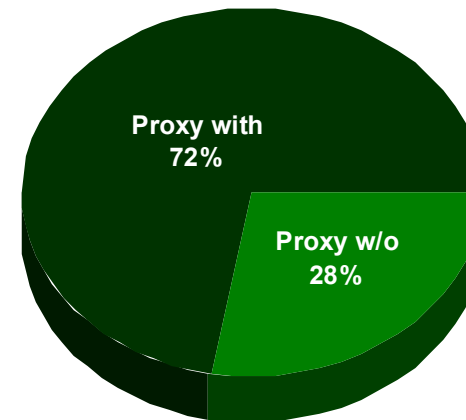
10 to 13 Years



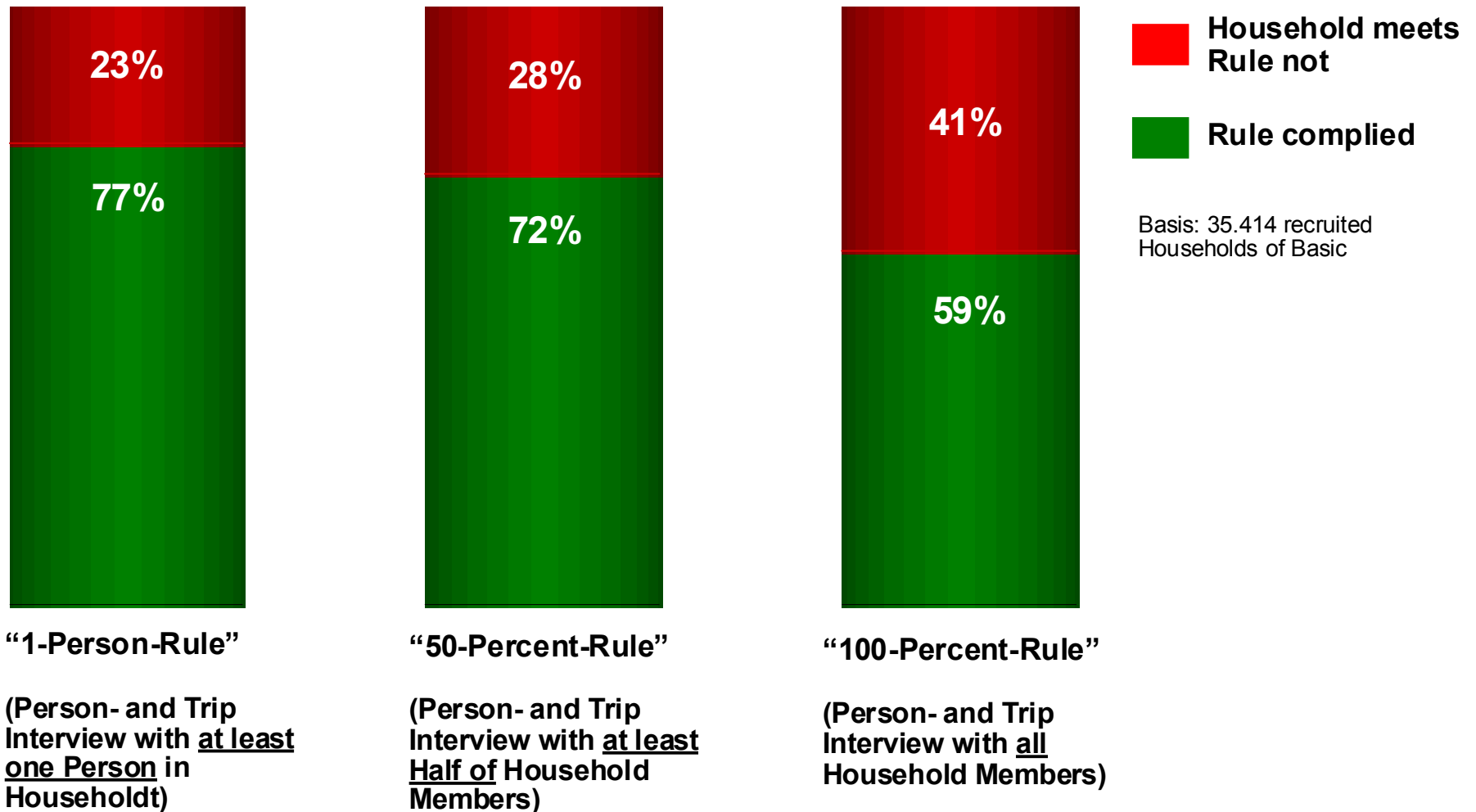
6 to 9 Years



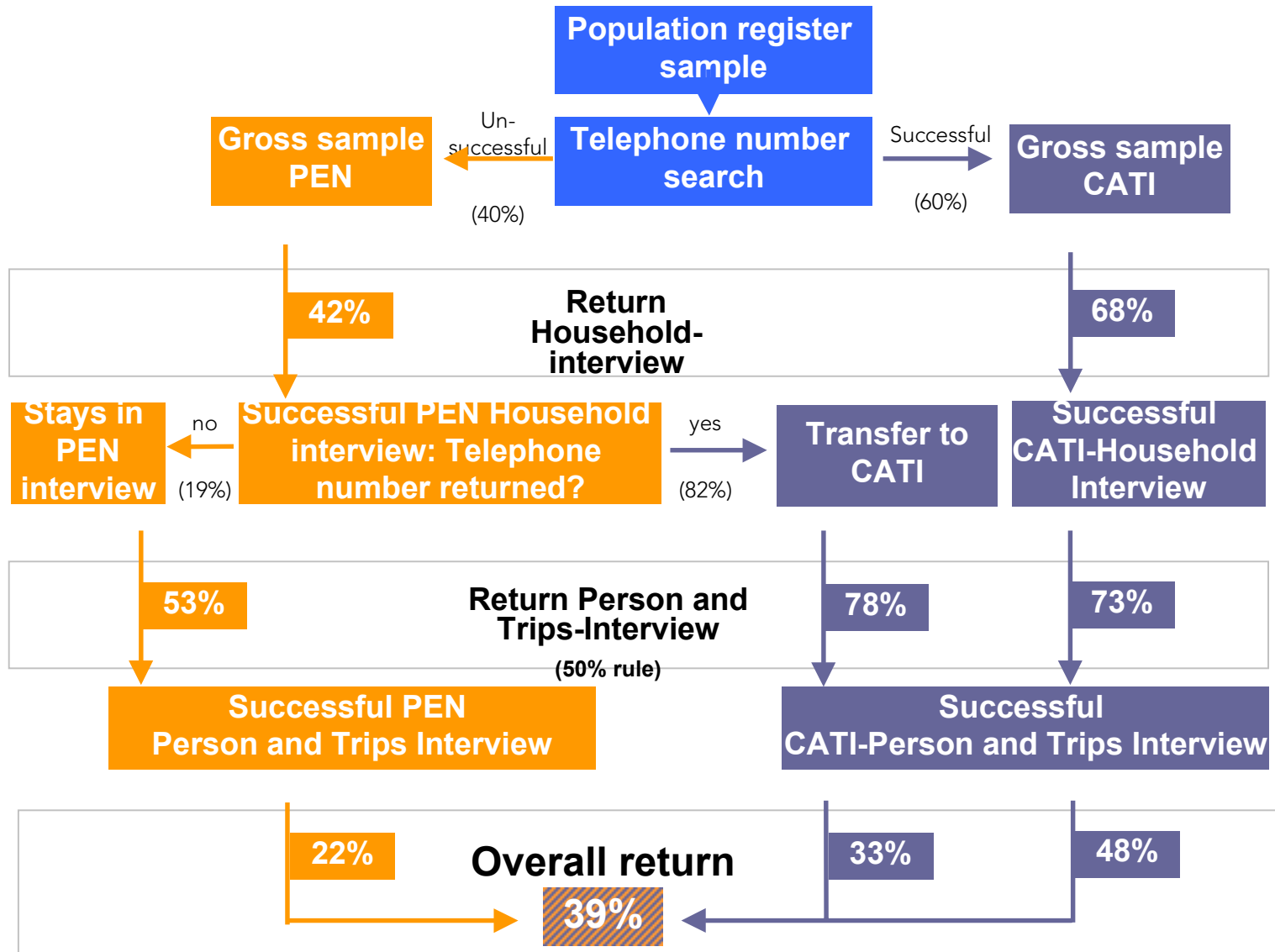
0 to 5 Years



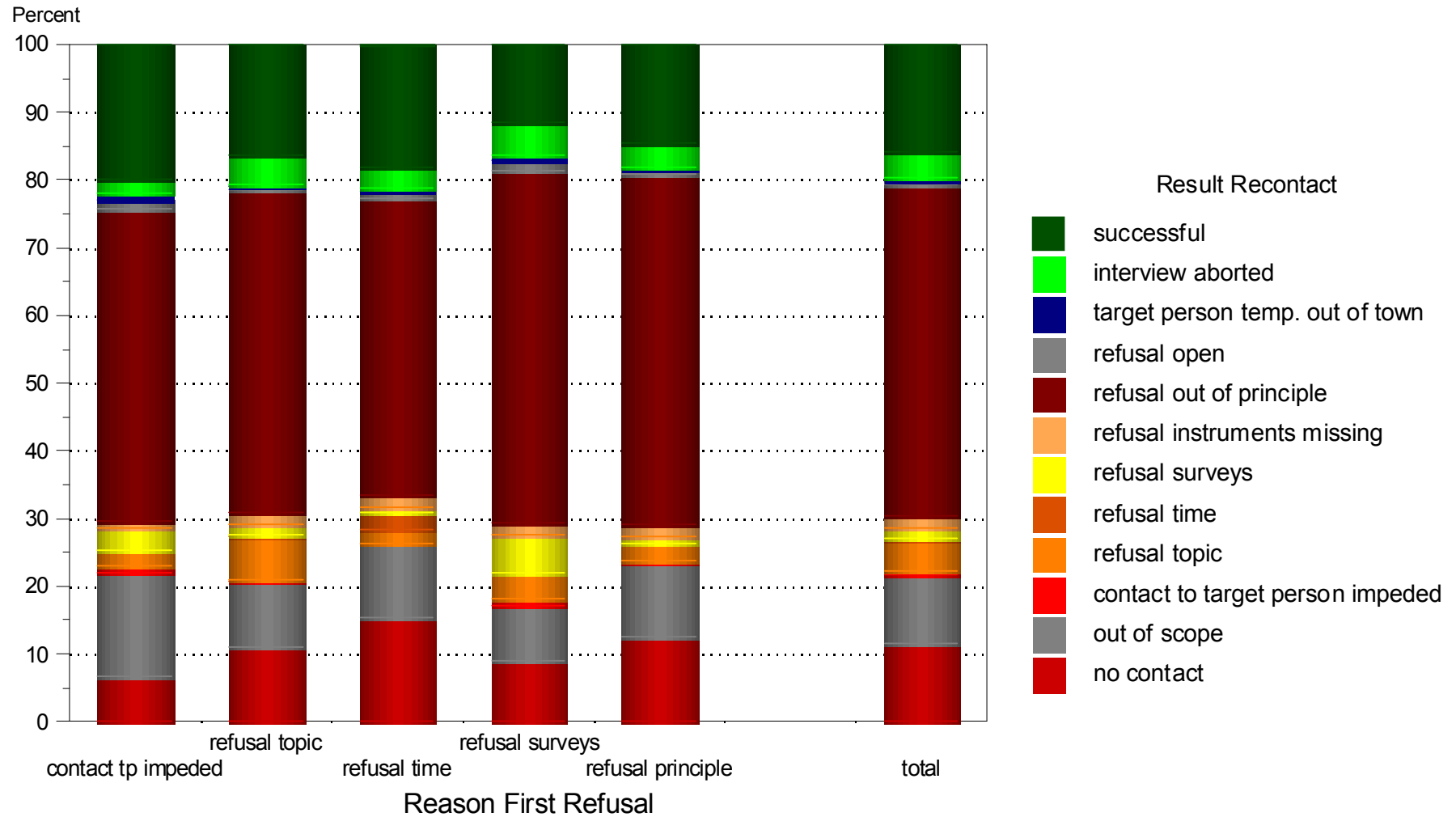
Mobility in Germany 2002: Results on Criteria for a completed Household



Mobility in Germany 2002: Response Rates in the Process Levels by Survey Mode



Mobility in Germany 2002: Results of Recontacting Refusals by Reason First Refusal



Mobility in Germany 2002: Nonresponse-Study



- For the additional quality assurance, a supplementary nonresponse study was implemented beyond the usual recontacting of soft refusals.
- The nonresponse study addressed “total nonrespondents”.
- Within the telephonic available households, the nonrespondents were contacted by phone, the remaining households were contacted by interviewer.
- Based on our experience with other nonresponse-studies, we drastically cut the programme of questions to increase the number of successful interviews.

	CATI	PAPI
Gross Sample I	981	495
Non sample	39	83
Verified Gross Sample	942	412
in %	100 %	100 %
Interviews	412	289
in %	44 %	70 %
Refusals	514	119
in %	55 %	29 %
No contact	16	4
in %	2 %	1 %

Mobility in Germany 2002: Results of Nonresponse-Study



Contrast: Successful Interviews Main Study vs. Successful Nonresponse-Interviews (ref = Nonresponse-Interview)		
Items	odds-ratio	p-value
Nationality		
missing	0,95	0,83
German	1,70	0,01
other	ref	ref
Survey Mode		
PAPI	0,06	0,00
CATI	ref	ref
Sex		
male	1,22	0,02
female	ref	ref
Household		
Singles	1,99	0,00
2 Persons	1,73	0,00
3 Persons	1,50	0,03
4 Persons	1,15	0,44
5 Persons or more	ref	ref
Transit-Target Groups		
Less Mobile	0,89	0,44
Captives	1,05	0,83
Daily Users	1,67	0,02
Weekly or Monthly Users	1,12	0,56
Car User with good Transit Conditions	1,29	0,04
Car Users with Bad Transit Conditions	ref	ref
Number of Trips per Day		
missing	0,80	0,21
none	0,57	0,00
1-2 Trips	0,57	0,00
3-4 Trips	0,81	0,14
5 Trips or more	ref	ref
Number of Cars in Household		
none	1,14	0,42
one	ref	ref
two	1,40	0,00
three or more	1,06	0,73
McFadden Pseudo-R²	0,09	

The significant effects are illustrated by comparing the main study with the nonresponse study, mainly resulting in minor participation rates for:

- foreign residents
- women
- less mobile people
- elderly people (not illustrated)
- bigger households (resulting from the required questioning of all household members)

Yet, the effects are few, and the minor size of the nonresponse study does not justify a balance within the weighting.

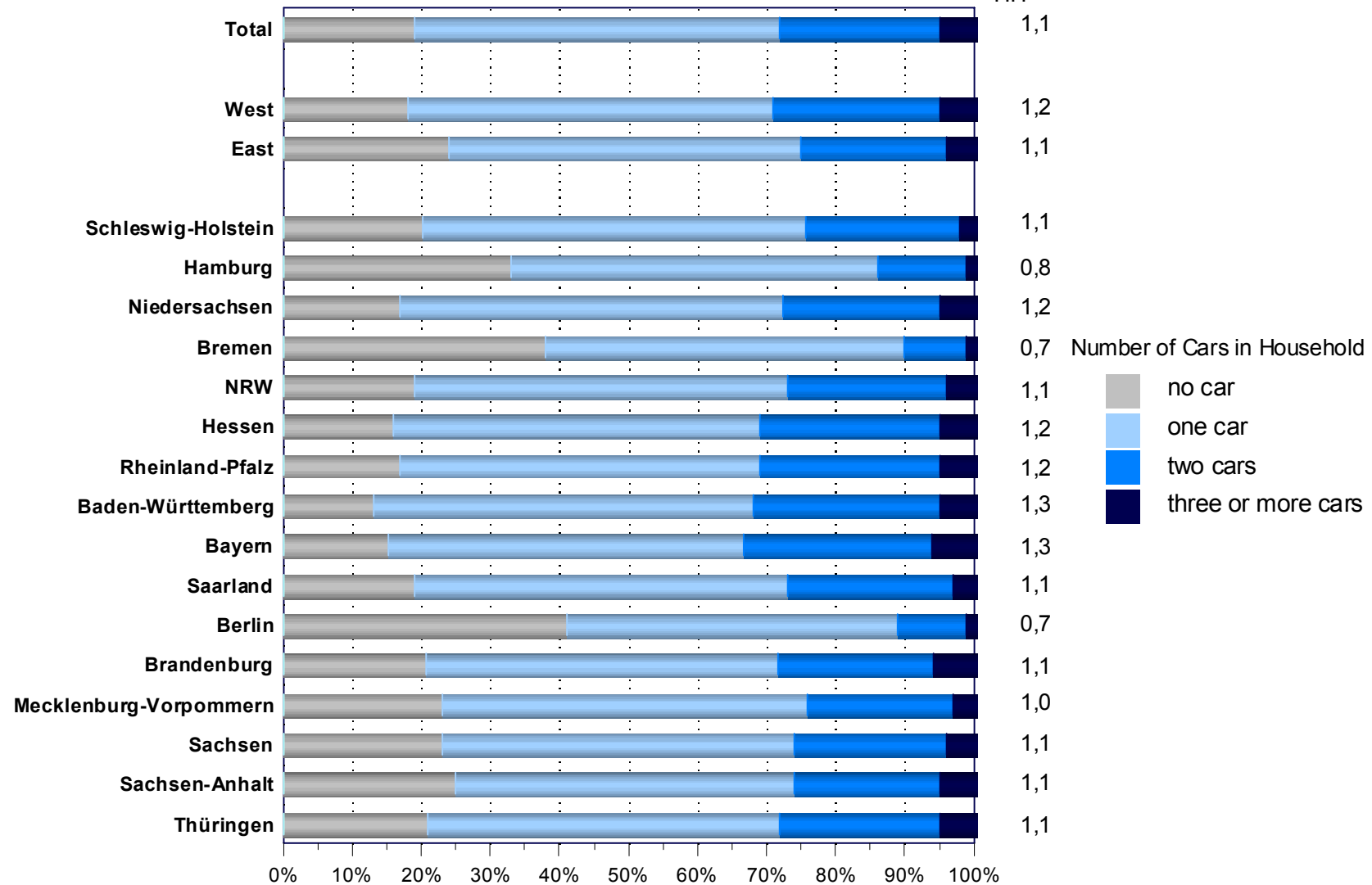
In the Scientific Use File, a selection variable was included, which provides the in the selection process determined inverse mill's ratios. They can be used as corrective factor within the multivariate analyses.

Mobility in Germany 2002: Car Ownership of Households by States



Households; Basic Sample

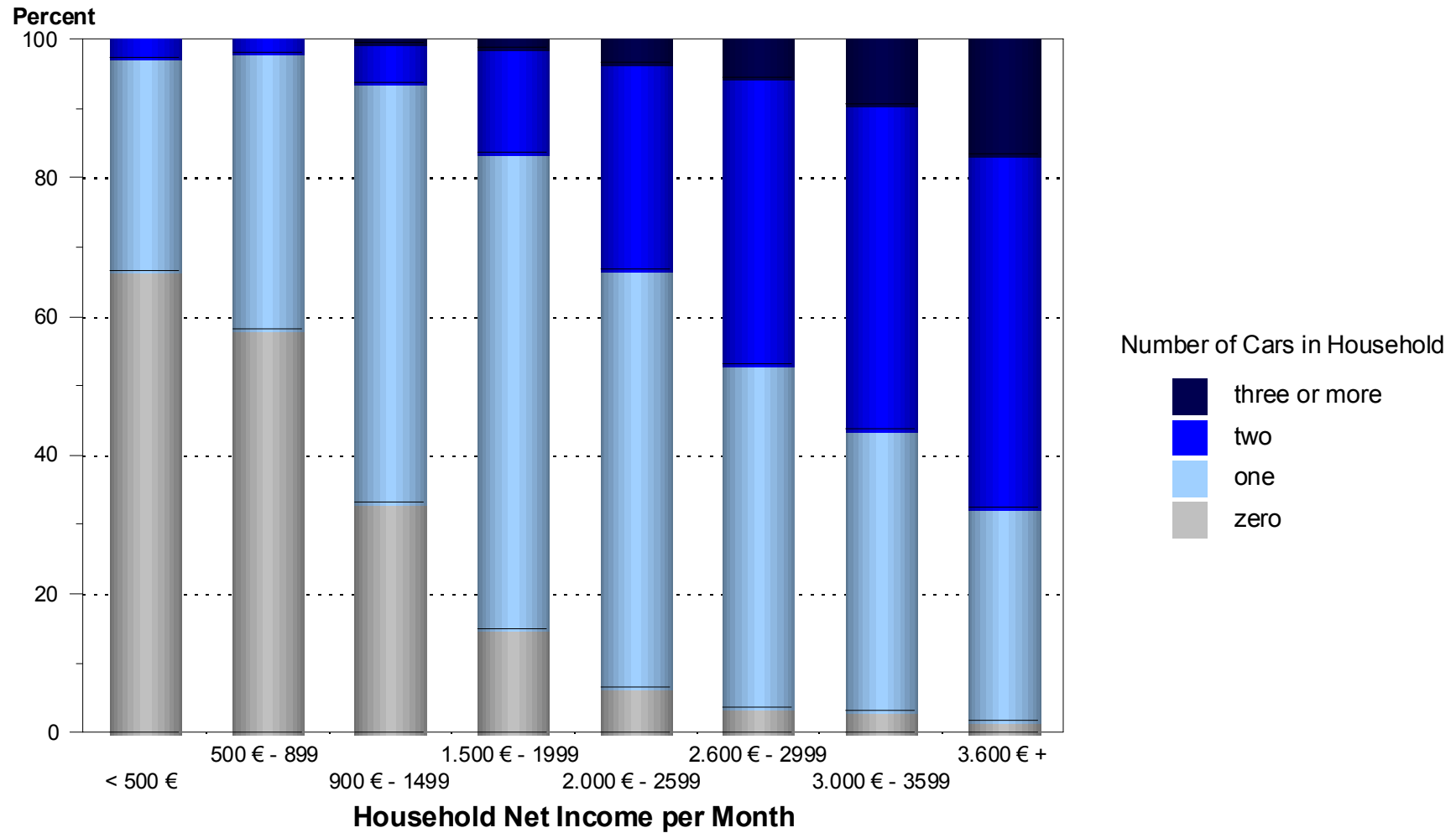
Average number
of cars per
HH



Mobility in Germany 2002: Car Ownership of Households by Income



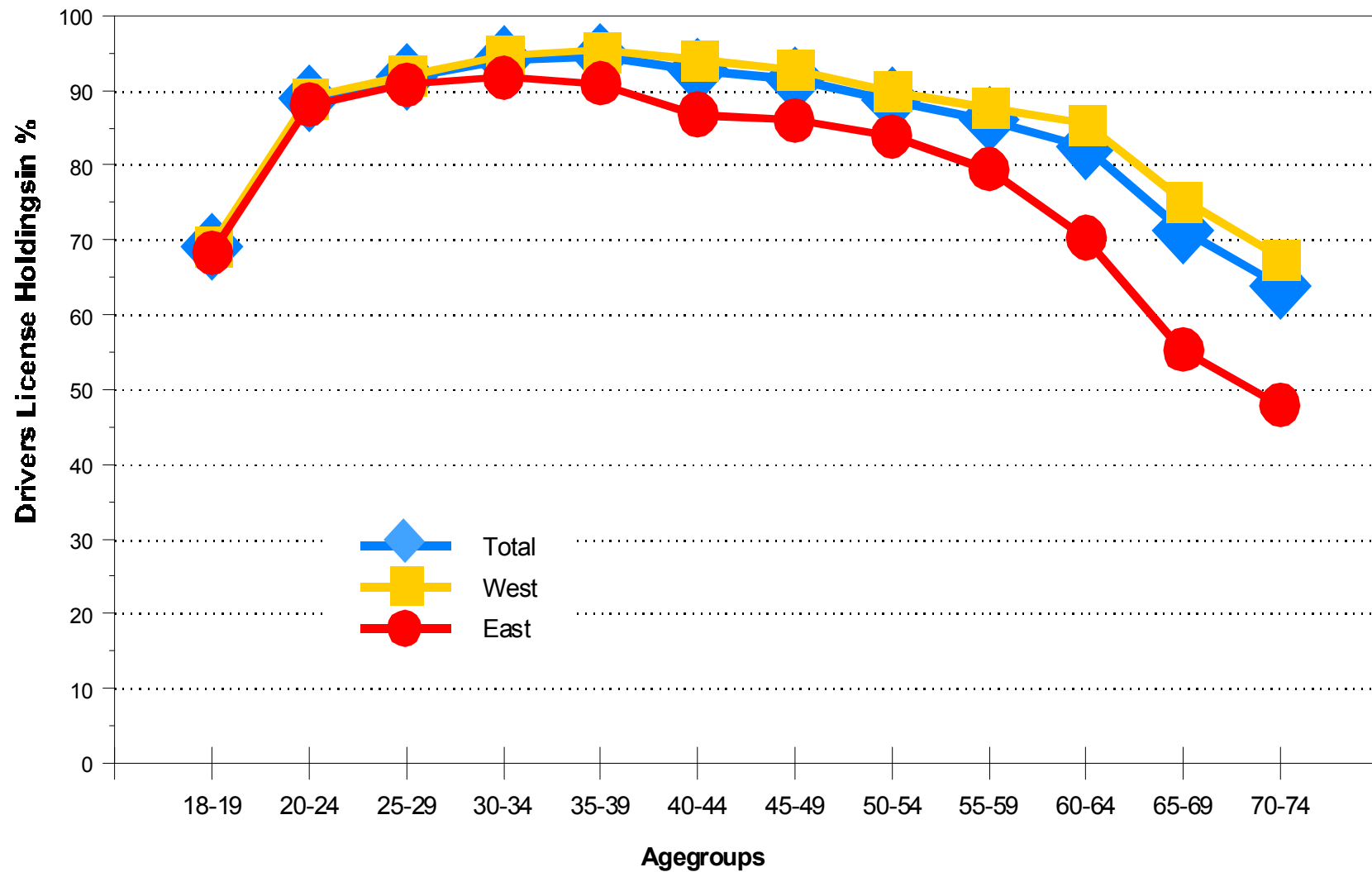
Households; Basic Sample



Mobility in Germany 2002: Drivers License Holdings for East- and West Germany



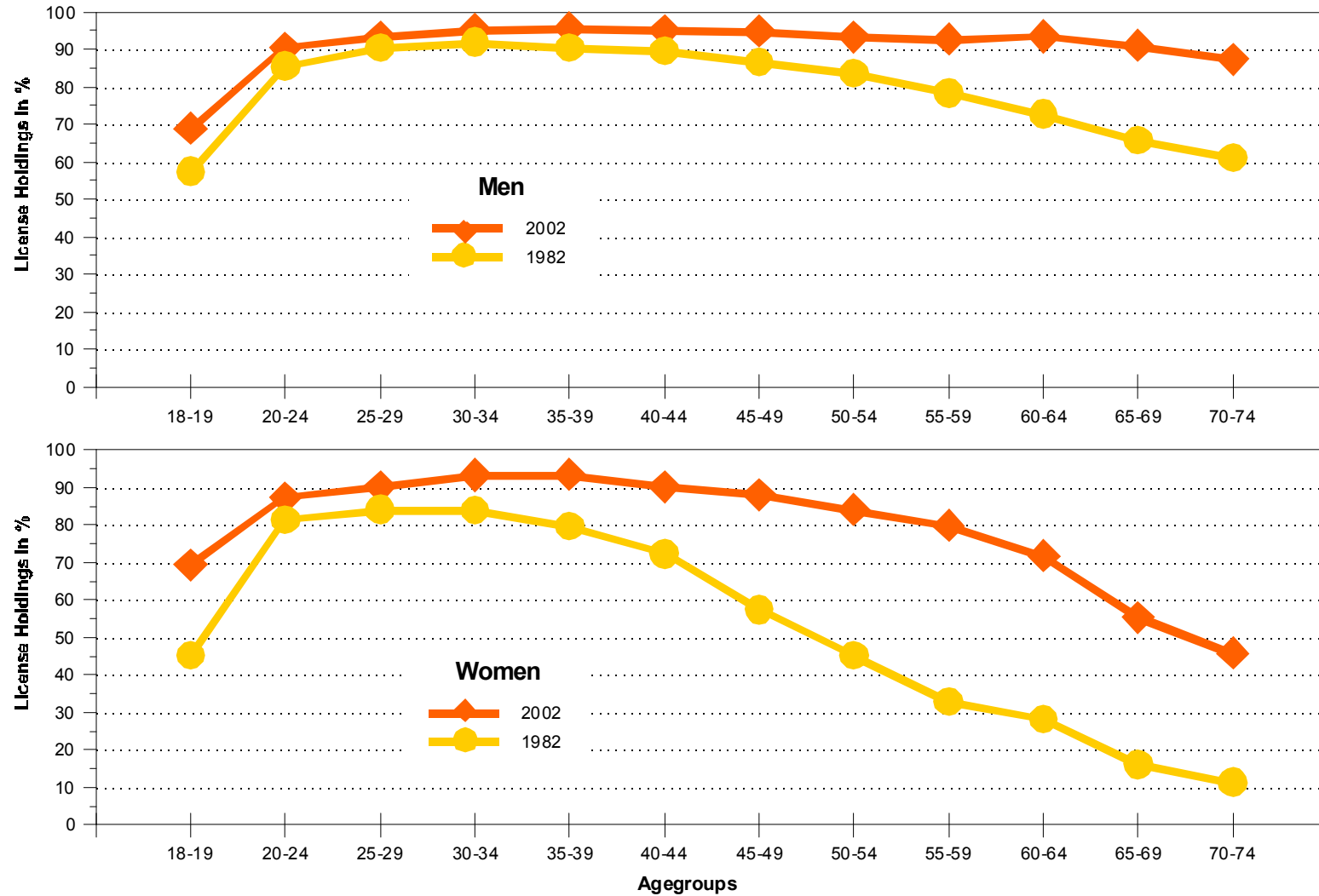
Persons 18 Years up; Basic Sample



Mobility in Germany 2002: License Holdings by Age and Gender



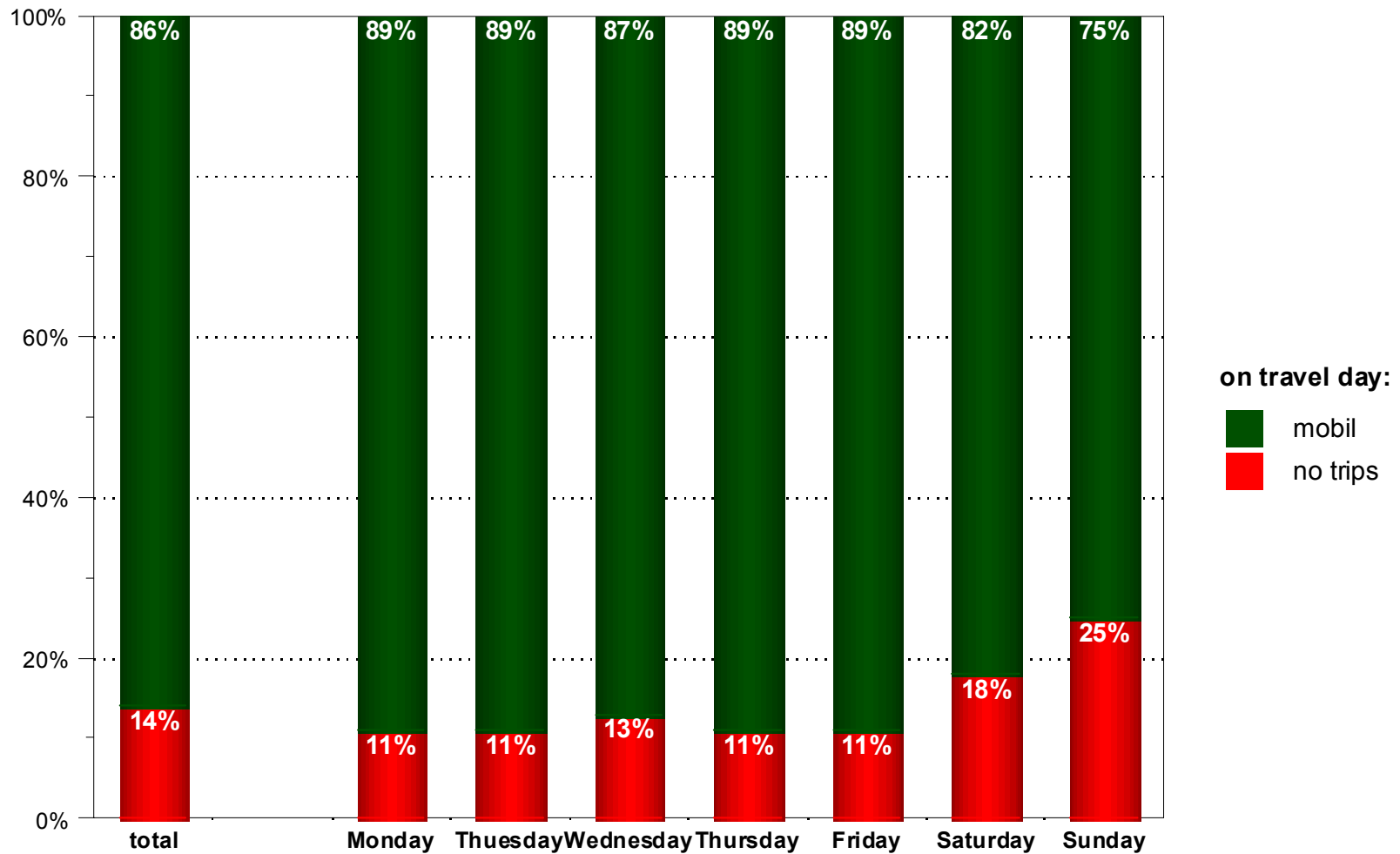
Persons 18 Years plus; Basic sample



Mobility in Germany 2002: Mobility Participation by Day of the Week



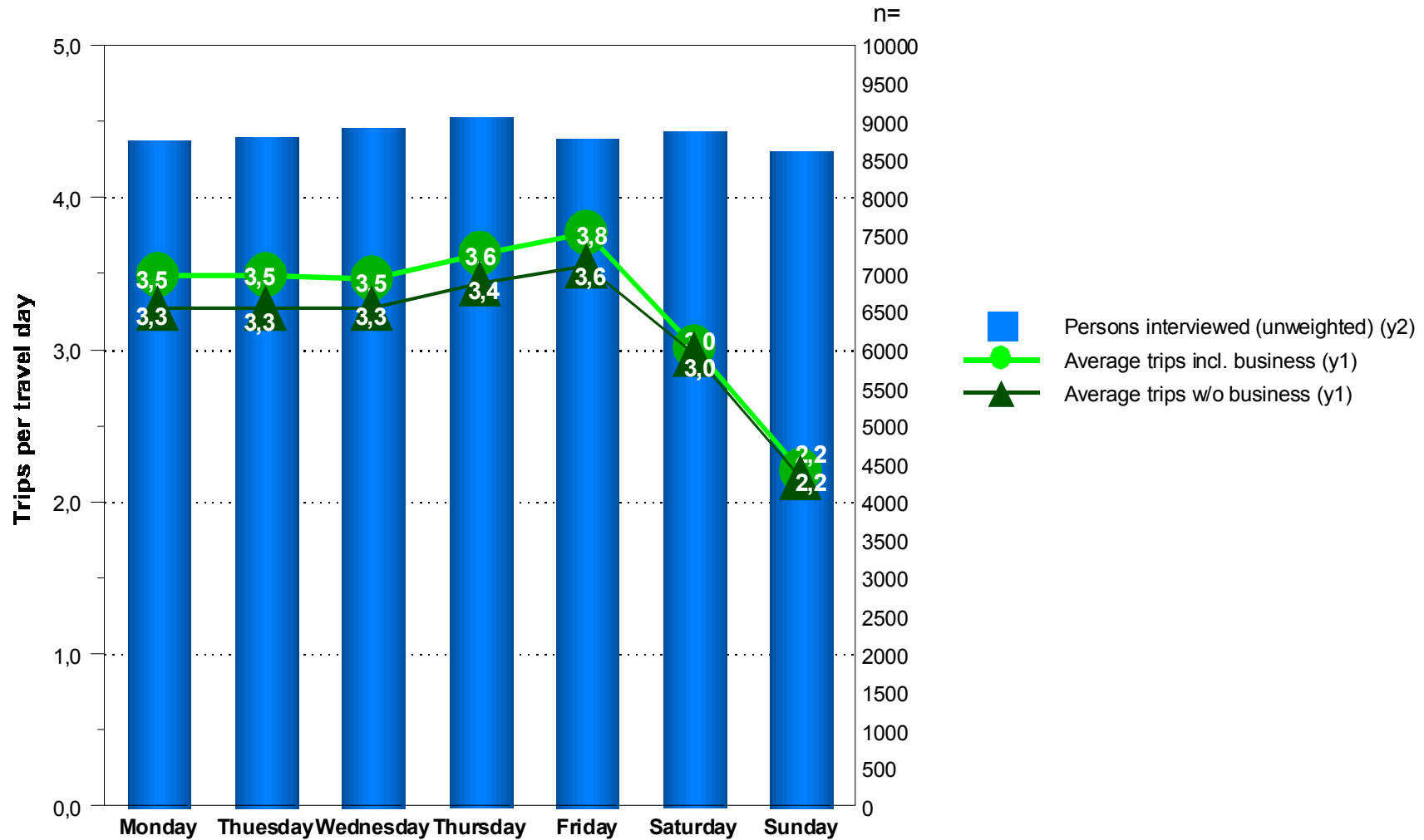
Self or proxy interview on trips, persons 0 years plus; Basic sample



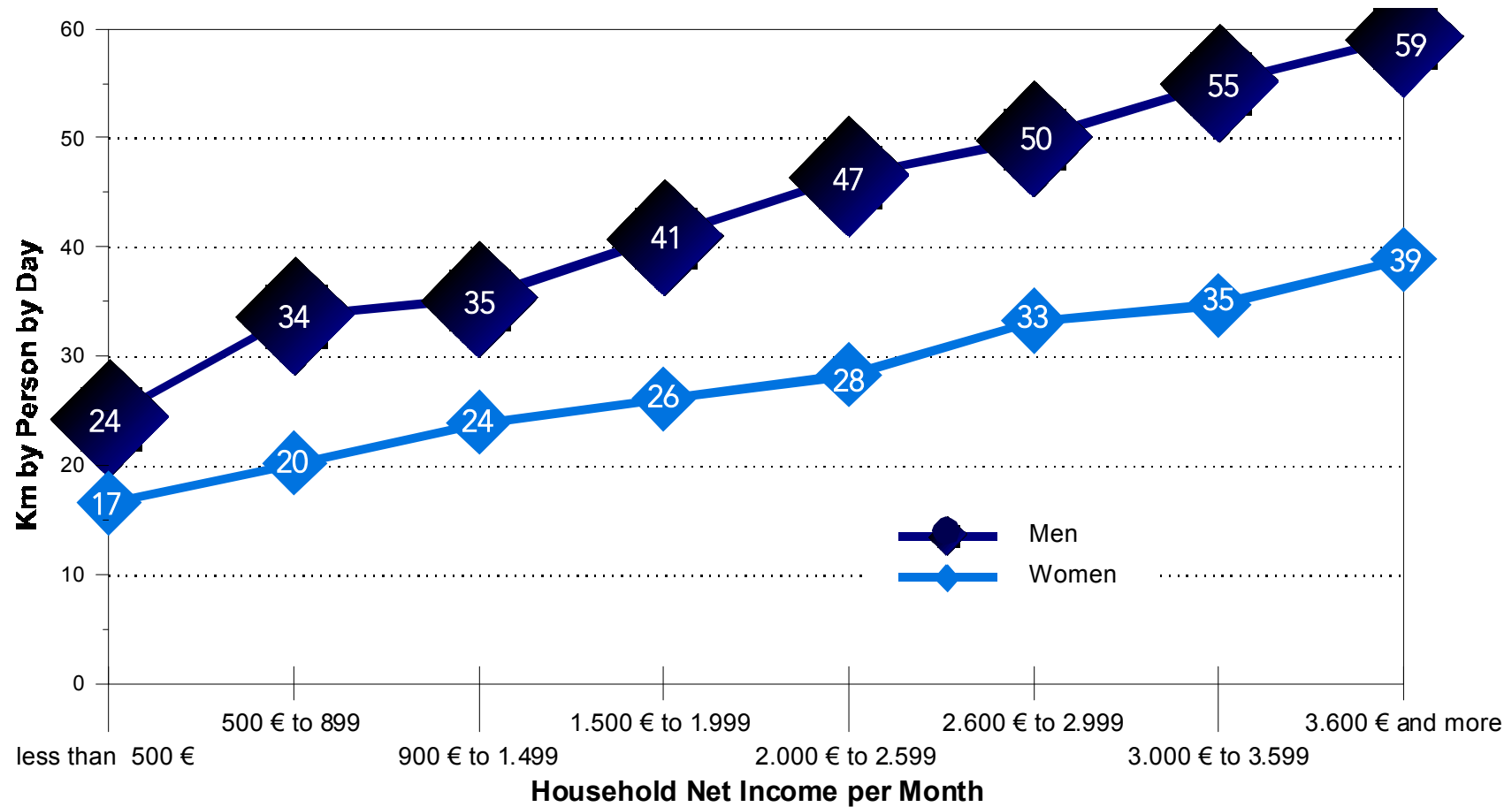
Mobility in Germany 2002: Trips per Day of the Week with / without Trips on the Job



Self or proxy interview on trips, persons 0 years plus; Basic sample



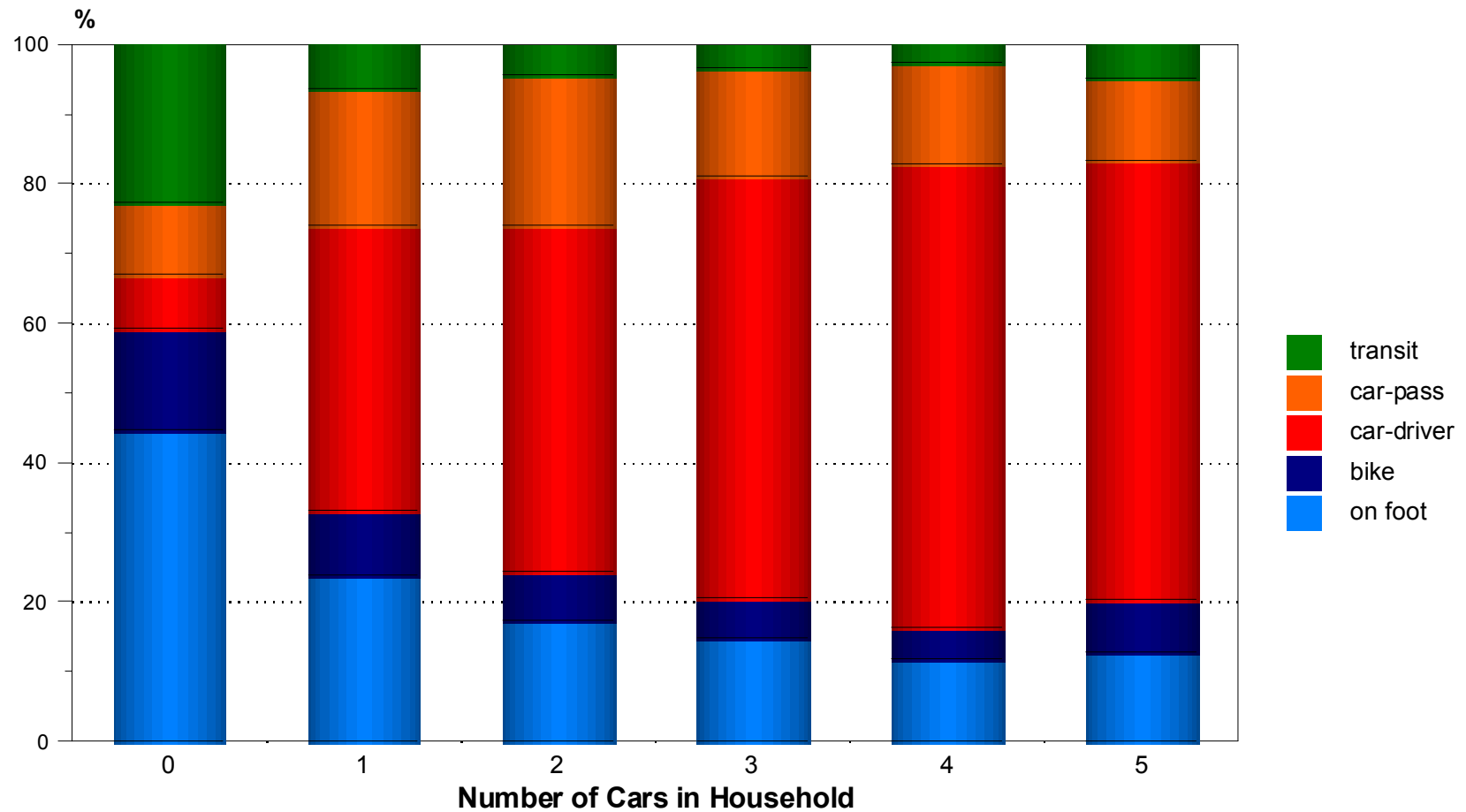
Mobility in Germany 2002: Income and Daily Travel



Mobility in Germany 2002: Mode Choice by Number of Cars in the Household



Self or proxy interview, persons 0 years plus; Basic sample



Mobility in Germany 2002: Reporting and Data Dissemination



- Survey information for participants on the web
- Interim results continually updated on <http://www.kontiv2002.de>
- Papers and articles
- Dissemination of data via <http://www.clearingstelle-verkehr.de/>
- Reporting tool MiT freely available

Mobility in Germany 2002: Conclusions



- **MiD is a general purpose NTS**
- **The process of designing and coordinating federal surveys was successful**
- **Interaction of instruments and contents: adapted methods make for extended results**
- **Household context challenging but possible**
- **Technological and behavioral changes will require methodological adaptations**