WCTR

METHODOLOGICAL OPTIONS FOR OBSERVING LONG-DISTANCE MOBILITY: THE FINDINGS FROM FRENCH PILOT HOUSEHOLD SURVEYS

MICHEL HOUÉE
Economic and Statistical Service, Ministry of Transportation
Tour Pascal B, 92055 La Défense Cedex, FRANCE

Abstract

As a contribution to the design of the best possible harmonised household survey about long-distance mobility at the European level, a pilot study has been processed on a representative sample of individual residents of the French Rhône-Alpes region in 1997.

Three main options have been tested: using random selection versus panel recruitment; collecting the information via self-filled mailed-back questionnaires versus CATI interviews; having a recall period of one versus three months for the description of the mobility.

These options are compared in terms of sampling efficiency, mobility rate and intensity, and number of trips per journey as well as of stages per trip. It reveals, among other findings, a better performance of random-based and CATI driven interviews.

INTRODUCTION

The initial justification for studying methodological options about long-distance mobility surveys is the growing concern at the European level with passenger transport policy, and the consecutive need to know more about long-distance mobility of European citizens.

Indeed, the importance of transeuropean networks for economic integration and the corresponding budget requirements, as well as the environmental issues associated with the concept of sustainable mobility, or the debates around regulation of congestion and road pricing, raise many questions in the area of passenger mobility.

As early as 1988, a concerted European research action, named COST 305, and dealing with the data required for studying the demand of interregional passenger transport, has recommended the launching of harmonised national household surveys providing estimates of flows between large zones (about a hundred of NUTS 1 zones covering European territory) and helping consequently in the calibration of a more detailed matrix (at NUTS 3 level, about a hundred of NUTS 3 zones covering French territory) for which only a limited number of direct observations are available.

Recently, an accent has been put at the European level (DG7) on the importance to develop research about such subjects within the fourth framework research program, a specific set of tasks being devoted to Information Systems in the strategic part of it. This has led in particular to two important research consortium: INFOSTAT, dealing with the whole of a European Transport Information System (ETIS) with the perspective to establish, on the basis of a clear definition of basic concepts and standards and of a diagnosis of available data, schemes for immediate actions of data collection, with a substantial part devoted to passenger mobility; and MEST, concerned with methods to improve the cost/efficiency of data collection about long-distance passenger mobility.

In parallel, after a long period of discussions between the European Commission (EUROSTAT) and the Member States, a technical and financial agreement has been reached in order to experiment pilot household surveys in a first selection of eight countries among which France.

The following sections relate the specific characteristics of the French pilot survey, which contributes to the general effort mentioned above, in a context where the concern about information systems has also been introduced in the French transport research program (PREDIT).

THE GENERAL SCOPE OF THE SURVEY

In order to allow for a better territorial representativeness, the choice has been made to focus the minimum sample of one thousand households required by the Commission, on the residents of a single Region. Rhône-Alpes has then be selected on the basis of best reproducing at a lower level the structure of French territory, as well as because of its particular involvement in the matter of passenger mobility, combined with an interesting position for journeys to neighbouring European countries.

All individuals over 6 years old have been considered as relevant, with the minor exception of those people travelling because of their professional commitment to transportation, such as taxi or lorry drivers, train ticket controllers, air stewards and so on. With the exception of young people under 15

with proxy reporting by an adult belonging to the household, individuals selected are supposed to answer themselves to the survey.

All journeys over a threshold of 80 km (crowflight-distance) from home (or in special cases from another appropriate starting point such as working place) had to be considered, a journey including all movements between the departure from home up to the return at home. In the case of round trips, the threshold has been applied to the most remote destination point. It was admitted that sometimes the place for return could be different from the starting point (such as week-end or business journeys starting late afternoon from the working place and ending at home), or that there could be no return (definitive change of dwelling place, or departure to-return from a second home where a long time is to be spent).

The reference period was the first quarter of 1997, meaning that all journeys completed during that period had to be described by respondents, and no others. Journeys could therefore have began in 1996, but on the other hand journeys partly achieved but not completed by the end of march 1997 were out of the scope.

Within these journeys, all trips, in the sense of any movement to a new destination with a significant reason for it, had to be described, whatever the distance. The significant reason was to a certain extent left to the appraisal of respondents; however, it was clearly advised to include all overnight stops, and not to bother whether this reason was or not of a different type as compared with the one of the previous trip, but on the contrary not to consider small stops such as having a look to the sightseeing or feeding the car tank.

Within these trips, all stages had to be considered, allowing for the description of the modal chain (modes in chronological order and places where the interchange happen), whatever the distance of each modal stage, including access and egress.

THE METHODOLOGY OF THE SURVEY

In order to be as complementary as possible with orientations already taken in the other pilot countries as well as within the MEST research consortium working in parallel on convergent items, it has been decided to test within the pilot three main methodological options, to which France was besides paying a particular interest on the basis of its own experience and in the perspective of building up a continuous observation tool dedicated to long-distance mobility.

The main options

The first option is dealing with the recruiting basis : at random in the general population of residents using a telephone yearbook, versus among members of an already existing panel. The hypothesis there was that an existing panel could avoid some substantial recruiting burden and provide for more reliable answers, whereas a random procedure would prevent from any dependence to pre-existing tools and any a priori size limitation (concerning oversampling in particular). Another underlying reason for testing such an alternative was the possible French perspective mentioned above of a continuous long-distance survey to follow-up mobility in the interval of large national household surveys approximately occurring every ten years.

The second option has to do with the length of the travelling period covered within a retrospective approach: one month versus three months. The challenge here is to establish a balance between the

advantage of being more cost-effective with less frequent waves, and the drawback of introducing a stronger memory effect.

The third option consists in testing a self-filled mailed-back questionnaires procedure against a computer-assisted telephone interviews (CATI) one according to a cost-efficiency criteria (lower response rate and lower adaptativity for mailed surveys but higher costs for telephone surveys). The lack of French experience about telephone surveys applied to long-distance mobility has been an additional element in favour of this third option.

In order to make the test of these options as fruitful as possible, the sample has been split in eight (2^3) segments (so-called «legs») resulting from the crossing of these three options, comparable in volume (approximately 125 households for each of them) and in socio-demographic structure, so that results could be compared between them. Such a design allows for analysis of combined effects, such as to what extent are telephone interviews more sensible to memory effects due to a three months period than postal interviews, and up to what extent having a good practice of surveys such as panelists can help from that point of view.

A last consideration to be brought is that in order to keep to each of the legs some kind of optimal design, it has been preferred to adapt a bit instead of keeping strictly to the initial definition. That means that requirements are slightly less demanding for postal questionnaires, not to be dissuasive, whereas some postal material is sent in advance to households with telephone interviews to help in the understanding of the matter and the remembering of past mobility.

The common methodology

To the exception of what is mentioned just above, other characteristics of the survey are unique for the whole of the sample.

In particular, common requirements, agreed within a Eurostat working group, have been fulfilled in terms of survey units and variables, especially concerning the three survey units (journeys, trips and stages) mentioned above.

Main variables related to these survey units are:
- at journey level: place of departure (normally locality of residence) and return (normally locality of residence again), duration (day of departure and return) and number of overnight stays;
- at trip level: duration (day, hour and if possible minute of departure and arrival), place of origin and destination (locality and NUTS 3 level within the country of residence or country outside), main purpose and size of the party;
- at stage level: mode of transport and place of origin and destination (same definition as for trip) of each stage.

Main socio-economic parameters of individuals and corresponding households are also registered:
- at household level: size, number of children with corresponding year of birth, profession of the person with the highest revenue, car availability;
- at individual level: year of birth and sex.

In addition, the choice has been made to survey:
- a selected individual within each household instead of all the members of the household in spite of the higher cost-effectiveness in terms of number of trips, because of the cluster effect for leisure trips;

- merely on a retrospective basis not to increase the number of legs to the detriment of the reliability of results by leg, and because diaries, which make sense only in the postal procedure, would have destroyed the symmetry of the design.

THE IMPLEMENTATION OF THE METHODOLOGY

The sampling procedure

According to this general framework, a recruitment has been organised, distinctly for the panel based and the random sample, but with a common attention to the structure according to the category of locality of residence (in terms of number of inhabitants and of relative part of high-level professional classes), NUTS 3 zone of residence and number of people within the household.

For the panel part, a letter was sent to a sample of the members of the IPSOS national consumer panel being Rhône-Alpes residents, to ask for their mailed-back acceptance to participate, and to collect the information necessary to select the individual to be surveyed.
For the random part, the telephone yearbook was used as a sampling basis, adding to that some automatic generation of new telephone numbers for those people paying a fee not to be on the list for privacy protection reasons, and assuming that the high level of telephone equipment in France limits the bias. The initial contact was in that case established by phone, aiming at the collection of the same acceptance and of additional information as for the panel part.

These two procedures could be imperfect regarding the concept of residents for such population segments as temporary students unlikely to be either members of a consumer panel or telephone subscribers, having in mind anyway that it was up to the people contacted (at least for the random sample) to declare whether they considered themselves as residents or not.

For both procedures, it has been decided to oversample highly mobile people, in order to increase the number of trips produced and get more reliable O/D estimates. The oversampling has been produced in two steps :
- first by oversampling the cities with the highest proportion of high-level professional classes among Rhône-Alpes region, according to the most recent statistics available;
- second by oversampling within the household the individuals with the highest mobility, using the Kish method.

For that second purpose, contacted people were asked, either within the contact letter (panelists) or during the call (random sample) to indicate the number of long-distance trips made by all the individuals of the household during the last year. On the basis of the results of 1993 French NTPS concerning Rhône-Alpes region and the first quarter of the year, targets have been established of 30% non mobile, 40% low mobile (1-2 journeys) and 30% highly mobile, consisting in a substantial oversampling of the last category.

The survey material

Once the selection of an individual had been made, he was sent:
- an explanatory note including examples of possible split of journeys in distinct trips,
- a map with a circle having for centre the residence of the household and for spoke length (orthonormic distance) 80km,
- for CATI interviews, a preparatory sheet mainly composed with a calendar where to indicate the period of trips and the destination of each of them,
- for postal interviews, the questionnaire itself.

The explanatory note was focusing on the concepts of journey and trip. About trips, it was underlined that they could be as many as the number of distinct purposes within the trip, that some of them could be less than 100 km (effective mileage) and that return trip had to be by definition the last of the journey.

The examples chosen were illustrating 4 situations: one triangular journey having more than one destination; one simple go and return journey, but repeating identically during the reporting period; one with location of the destination distinct from the location of the origin; one with a long distance go and return from the first destination point, and with a final return organised in a different way as compared with the departing trip.

To avoid discouraging complexity, no reference was made in the explanations to the mode of transport, neither to the concept of stage.

The personalisation of the map according to the locality of residence of each respondent appeared to be manageable.

The preparatory sheet was designed in a friendly way, looking like the calendar of a usual agenda, and incorporating the indication of the Christian name. There again, to avoid disruptive complexity and to prevent people to structure too much in advance their answers, with the risk to oppose to the logic of interviewers, the only effort asked was to identify the periods of travel and to mention the corresponding destination (not trying at that stage to introduce the option of multi-destinations journeys).

The questionnaire itself has been designed in a way as to maximise the number of journeys and trips described on each double page: each respondent was supposed to indicate, in chronological order, the rank of the journey within the period and the rank of the trip within the journey, in each column. In addition, for the same reason and also not to bother respondents with repetitive reporting, for each journey reported, the existence of identical trips (in the sense of common origin-destination, mode of transport, purpose of trip and size of the group travelling) was investigated. If any, their total number during the recall period had to be mentioned, as well as the dates of departure and arrival, in chronological order, up to 4 of them.

The CATI interview has been designed in order to ensure that respondents would describe all the sequences constituting a journey, both at the trip and stage level, making sure that each new trip or stage had its origin at the destination point of the preceding one. In addition, several controls of coherence have been introduced.

Apart from that, the design was rather classical, consisting for each trip in an initial description of the date of departure, followed by the destination and date of arrival, the purpose, the size of the party, and the mode(s) of transport in chronological order.

The purpose was detailed in 8 categories, with especially a split between business and long-distance commuting, a specific category for the overnight stay, and return as the last in the list.

Ten modes were distinguished, having both long and short distance modes, and making a distinction between scheduled and non scheduled for air and interurban coaches. It was required to indicate the chain of modes even if two successive modes belonged to the same category, with the exception of urban public transport.

The efficiency of the procedure

Concerning the panel, 643 initial contacts have been necessary in the perspective of monthly interviews, and 580 for quarterly interviews, to produce the recruitment basis supposed to be required according to drop out estimates, which means respective rates of acceptance of 60% and 56%.

Concerning the random sample, the corresponding figures are 894 for monthly interviews and 607 for quarterly, rates of acceptance being respectively 58% and 55%.

Globally, rates of acceptance appear therefore rather insensitive to the recruiting method and to the survey frequency.

According to the expectations about the drop out rate, the recruitment by leg vary from 325 (random monthly postal) to 140 (random quarterly CATI).

At the end, only three legs were significantly different from 125, consisting in underestimation of the drop out rate for monthly postal legs, either random- or panel-based, and overestimation for random monthly CATI. As a whole, the target was slightly exceeded, getting 1020 full interviews on the three months period (among 1188 respondents at one of the three waves at least).

This means that the drop out rate was indeed highly contrasted among legs. The main reason for it is the impact of the method of surveying : 18% for CATI against 47% for postal. The method of recruitment also has some influence (29% for panel versus 39% for random), as well as the rhythm of surveys, monthly meaning a 75% more drop out as compared with quarterly (42% instead of 24%).

Table 1 - The efficiency of the procedure

	RANDOM			PANEL			Σ
	Monthly	Quarterly	T	Monthly	Quarterly	T	
Initial contact	894	607	1501	645	580	1225	2726
Recruited	518	340	858	382	320	702	1560
Acceptance rate	58%	55%	57%	60%	56%	57%	57%

	Postal	CATI	Postal	CATI	T	Postal	CATI	Postal	CATI	T	Σ
Split by leg	325	193	200	140	858	208	174	168	152	702	1560
Target	125	125	125	125	500	125	125	125	125	500	1000
Full respondents	114	162	122	126	524	119	126	125	126	496	1020
Drop out rate	65%	16%	39%	10%	39%	43%	28%	26%	17%	29%	35%

Despite the initial quotas, further attrition has produced unbalances in the socio-demographic structure of elementary legs that could have bias the comparability. Therefore, some calibration on margins has been made, sometimes on the basis of a prior regrouping of categories, when each considered independently would have included too few individuals, such as for professional activity.

THE MAIN RESULTS

The mobility rate

First, the mobility rate (respondents having described at least one journey during the three months period) do not appear to be strongly differentiated from an average of 61.1% according to each factor of the survey design considered separately: 58.6 for random versus 63.8 for panel; 62.2 for postal versus 60.2 for CATI; 61.6 for monthly versus 60.6 for quarterly.

However, it may vary largely between elementary legs. For instance, it is remarkable that according to whether the protocol used is postal or CATI, the panel quarterly respondents'mobility rate may vary from 72% to 54%.

As a whole, it appears that the mobility rate is in three cases upon four significantly higher for the panel based than for the random based sample, everything apart being equal. Mobility rate is higher in CATI than in postal protocol for monthly waves, but equal or lower for quarterly waves. Alike, mobility rate is higher in quarterly waves than in monthly for the postal protocol, but lower for the CATI protocol.

Table 2 - The mobility rate (average = 61.1%) in %

RANDOM			
58.6			
Postal		CATI	
Monthly	Quarterly	Monthly	Quarterly
54.9	57.8	61.7	58.0

PANEL			
63,8			
Postal		CATI	
Monthly	Quarterly	Monthly	Quarterly
62.4	72.3	66.6	54.2

Source : IPSOS-Regions

The structure of mobile appears reasonably contrasted according to the socio-demographic variables describing the individual travelling. As expected, men are more long-distance mobile than women, being 51% of the total of mobile but only 44% of non mobile.

The age period where people appear to be particularly mobile is between 25 and 49 years old, the proportion of the corresponding categories in the total population being mobile exceeding the corresponding proportion for non mobile by 6 to 9 points. Inversely, people under 25 and over 64 years being mobile exceed the corresponding proportion for non mobile by approximately 9 points.

The professional activity is a third important discriminatory variable, the proportion of individuals with medium-high status being mobile exceeding by nearly 18 points their weight in the population of non mobile, whereas the situation for retired and unemployed people is about the reverse (12 points less).

The most significant result concerning the zone of residence is that people living in large cities (over 100 000 inhabitants) and in dense areas (département du Rhône) are mobile in a significantly higher proportion than others.

The mobility intensity

The mobility intensity (number of journeys during the three months period) is on average 3.5. The most discriminating factor about it is the recall period, surprisingly going in the direction of quarterly interviews producing significantly more journeys (3.6) than monthly (3.2), although one could have expected some memory and may be fatigue effect associated to the fact of having to remember in one single process for the whole of the last three months.

This result is in fact nearly entirely coming from the panel based part of the sample, with differences of approximately one journey between quarterly and monthly interviews, as well for the postal than for the CATI part.

Table 3 - The mobility intensity (average = 3.5) in number of journeys

RANDOM			
3.5			
Postal		CATI	
Monthly	Quarterly	Monthly	Quarterly
3.9	3.5	3.6	3.3

PANEL			
3.3			
Postal		CATI	
Monthly	Quarterly	Monthly	Quarterly
2.6	3.7	3.2	4.1

Source : IPSOS-Regions

It is not simple to explain this phenomenon. when looking distinctly for each of the three months at the ratio between the mobility frequency produced by a quarterly and a monthly recall period. The fact that this ratio is in the postal legs much higher for the first month (January) than for the two next months, and anyway always higher in the first than in the last month, is even more contradictory of the assumption of a remembrance effect. And the hypothesis of a lassitude effect for the quarterly respondents can only be admitted when the mobility frequency for the last month is inferior to the one of monthly respondents, that is only for the random sample.

Table 4 - The quarterly/monthly recall period ratio of mobility intensity per month

	Random / Postal	Random / CATI	Panel / Postal	Panel / CATI
Total period	0.92	0.93	1.46	1.30
January	1.35	0.92	2.00	1.24
February	0.88	0.94	0.85	1.30
March	0.74	0.76	1.18	1.20

Source : IPSOS-Regions

The influence of the two other factors of the design is lower. the mobility frequency varying from 3.5 (random) down to 3.3 (panel) and from 3.3 (postal) up to 3.5 (CATI).

Variations of mobility intensity according to socio-demographic characteristics of individuals go partly in the same direction as for mobility rate : men producing more journeys (3.9) than women (3.1) and individuals with medium-high professional status travelling more (4.1) than those with low status (3.0) or being retired or unemployed (3.2).
However, the age is not as discriminating of the mobility intensity as it was of the mobility rate: apart for young people being less than 24 years old (2.7), the number of journeys is always comprised between 3.5 and 4.

The mobility complexity

Qualifying so the number of trips per journey, it appears that Rhône-Alpes residents have had during the first quarter of 1997 a rather complex mobility, with as an average 2.5 trips per journey.

The greater ability of CATI respondents (2.7) to cope with complexity as compared with postal respondents (2.3) is conform to what could have been expected. The choice of the sampling method (random or panel) and of the recall period have little or no influence on the mobility complexity.

Table 5 - The mobility complexity (average = 2.5) in number of trips per journeys

RANDOM			
2.6			
Postal		CATI	
Monthly	Quarterly	Monthly	Quarterly
2.3	2.5	2.7	2.6

PANEL			
2.5			
Postal		CATI	
Monthly	Quarterly	Monthly	Quarterly
2.3	2.2	2.7	2.7

Source : IPSOS-Regions

As a consequence of this high proportion of journeys having more than one destination. the return to the departure point. usually home, is only about 40% of the total purposes of trips.

Apart from that, the most important purpose is visits to friends and relatives, for one sixth of the total, and other leisure (than holidays or visits to friends and relatives) as well as business for 10% each. It may be noticed that overnight stays are more important than holidays. and that commuting, although marginal with less than 3%, is not neglectible considering the 100 km threshold.

Table 6 - The split of trips according to purposes in %

All purposes	100.0
return trip	40.6
Visit to friends or relatives	16.1
holidays	5.5
overnight stays	7.7
other leisure	10.6
other personal reasons	6.2
business	10.4
commuting to work/school	2.7
not answered	0.2

Source : IPSOS-Regions

Concerning the origin/destination of trips. the domination of shorter distances within long-distance is massive. 52% of total long-distance trips are made within Rhône-Alpes region, and another 22% concerns relations with the 5 regions having a common boarder with Rhône-Alpes.

The only significant exception is of course the one of the relations with Ile-de-France region, accounting for 6.2% of total O/D, thus having the second rank just after the flow Rhône-Alpes/Provence-Alpes-Cote d'Azur (7.1%) and before the flow Rhône-Alpes-Bourgogne (5.5%).

The boarder effect is also very well evidenced from this survey, as no international region to region relation reaches the threshold of 1%. The main ones are also short-distance, with Geneva canton (0.7%), Bern canton (0.4) and Piémont (0.4). The relations with the Greater London do not exceed 0.25% of the total.

The modal complexity

On the other hand. the modal complexity, meaning by that the number of modes per trip, remains limited (1.2 as an average), due to the dominating market share of private car, accounting for more than 70% of all modes, whatever short- (mainly to access and egress) or long-distance (main mode).

No factor, either independently or through its combination with others, appears as having a significant influence on the degree of modal complexity, the maximum difference between elementary legs do not exceeding 20%. However, random-based and monthly interviews, with 1.1 modes per journey for each of them, are slightly less «mode» productive than panel-based and quarterly (1.2).

Table 7 - The modal complexity (average = 1.2) in number of stages per trips

RANDOM			
1.2			
Postal		CATI	
Monthly	Quarterly	Monthly	Quarterly
1.2	1.1	1.2	1.2

PANEL			
1.2			
Postal		CATI	
Monthly	Quarterly	Monthly	Quarterly
1.1	1.3	1.1	1.2

Source : IPSOS-Regions

Although a relevant modal analysis has to make a clear distinction between long-distance modes on one hand. and access and egress modes on the other hand. the low level of modal complexity allows to consider the distribution of modes within all stages as a approximation of the modal structure. The domination of car is indeed easily evidenced, with a proportion of cars as an exclusive mode of 72%, to be compared with 4.4% for TGV, 4.1% for non-scheduled buses and 2.6% for regular flights.

Table 8 : The split of stages according to modes of transport in %

All modes	100.0
private car (p.c.) exclusively	72.0
local public transport	5.7
conventional rail	5.2
p.c. associated with another mode	4.5
high speed train	4.4
non scheduled coach	4.1
scheduled flight	2.6
scheduled coach	0.5
ship	0.1
non scheduled flight	0.1
motorcycles	0.1
others	0.7

Source : IPSOS-Regions

THE MAIN METHODOLOGICAL FINDINGS

CATI interviews

Considering that one of the main hypothesis to be tested was the ability to get respondents prepared enough before the interview, it must probably be mentioned that a significant proportion of people had made no use of their memory jogger before the interview, and that the interview had to be postponed to a further date because of that. Although one of the reasons can have been for quarterly the too small interval between the initial contact where the sending of the support material was announced and the interview, people claiming sometimes at not having received it yet, the commitment to such a procedure cannot obviously be expected to be a 100% spontaneous whatsoever.

On the other hand, it seems that interviewers should be flexible enough about the rules, considering for instance the reluctance of respondents not to describe journeys out of scope because ending after the reference period. Not to get them frustrated and less committed in the further stages to the process, it is probably better to let them go on with the description, and to reallocate the journey to the right period thereafter (or delete it if appropriate).

For some of the respondents, a misunderstanding of the hierarchy between journeys, trips and stages makes no doubt, coming at the end of the call to a number of journeys described different from what appeared from the memory jogger (which as such is not a real problem). In line with this misunderstanding, the concept of «round trips» appeared as a difficult one, and many respondents felt uncertain about the need for reporting overnight stops. Also, as a specific CATI option was to limit the burden to respondents through not describing returns if they were «identical» (meaning symmetric) to the movement towards the destination of the journey, some individuals got confused about this concept of «identical» returns.

The time has been also a problematic dimension in so far as some confusion occurred between a.m. and p.m. time, and also because the «rounding» of figures to hours has led to «no time» trips, starting and ending at the same hour.

Eventually, a specific problem arose from the capacity limits of the CATI program. not being able to proceed over 50 trips, when it was the case (quarterly interviews).

One thing that will have to be investigated further on is why the duration of the interview has been on an average much longer for the first monthly wave than for the two following ones : respondents getting accustomed and therefore more efficient, or getting bored and less willing to describe all of their journeys in detail, or a combination of both ?

Postal interviews

The main problem has been the sequential description of trips without a pre-identification of journeys.

This may be correlated with the low reporting of return trips in the first wave of the monthly procedure. that obliged to introduce a specific warning when sending the second monthly wave questionnaires about having to report the return trips.

An error at the step of codification concerning the generation of trips not described (either by omission or because being «identical» in the CATI part) has temporarily led to wrong results about the structure of trips according to purposes, return trips being given the purpose of the trip to the main destination of the journey.

Another problem has occurred (to a larger extent than in the CATI part) about small localities with no specific postal code, making the zonal coding much more difficult.

FIRST CONCLUSIONS AND PERSPECTIVES

Summing up the previous methodological findings, it appears that in terms of sampling efficiency, the CATI procedure is much preferable to the postal one, all the more as it is associated to a quarterly recall period and a random-based sampling. The contrast between legs is almost entirely caused by the drop out rate, no real contrast among protocols appearing for the acceptance rate. Concerning the panel respondents, who were accustomed to the postal procedure and not to the CATI one, it should be noticed that the efficiency advantage of CATI is less considerable than for the random sample.

The impact of the procedure on the mobility rate is not highly contrasted as a whole, although most often resulting in a larger proportion of mobile for panel respondents than for random-selected ones.

Concerning the mobility intensity. the most noticeable result is that the quarterly recall period leads to the description of a higher number of journeys than the monthly one, although one could have expected some memory and may be fatigue effect associated to the fact of having to remember in a single process for the whole of the last three months.

The greater ability of CATI respondents to cope with complexity as compared with postal respondents is the main conclusion about the procedure at the trip level, no real contrast appearing at the stage level.

As a whole, it seems that the best compromise would go in the direction of random-based CATI interviews with a quarterly recall period, not forgetting among others the specificity of the panel used, the problem of highly mobile people difficult to contact at their home and the lack of explanation about the absence of memory effect.

Looking at the results themselves, they are consistent with the most common assumptions about the impact of socio-demographic variables on mobility as well as of such factors as distance between origin and destination on modal split. However. some further work has to be done to incorporate in a proper way some additional variables.

A first one deals with the strategic dimension of the mode of transport used. Besides the mere split of stages according to the mode used, a relevant modal analysis need the creation of a macro-variable, combining access and egress modes with the long-distance mode(s), so that the use of a mode for the terminal link of a trip cannot be confused with its use for its long-distance segment.

A second important one concerns distances and duration of trips. On the basis of the O/D codification at NUTS2/NUTS3 level, a complete process of distance calculation can be worked out, subsequently allowing for a test of plausibility of speeds (duration/distance), which may well lead to some corrections about distances or durations. In addition, it will be profitable to analyse the possible impact of not having surveyed non respondents to the first monthly wave in the subsequent waves for the random-based part, opposite to what has been done for the panel-based part.

Last, it will be very important in the direction of some cost/efficiency thinking, to establish as a detailed split of the costs as possible between the different survey methods.

It is the intention that the results of this pilot survey make the best possible contribution to the general orientation recommended by INFOSTAT of developing the most cost/efficient methods of data collection about long-distance passenger mobility in an harmonised way among the European countries.

This could be achieved through further research work applied to this material, such as the calculation of the efficiency of the oversampling, as well as through combining these results with other elements, especially derived from the other national pilot surveys developed within the EUROSTAT framework as well as from the MEST project, such as the test of the prospective/retrospective, or of the individual/household based alternatives.

Eventually, it could open the way for the availability of such tools as reasonably reliable O/D matrix data bases, and for a better understanding of mobility behaviour, that would be of great help in the planning and decision processes concerning Trans European Networks and European Common Transport Policy.

ACKNOWLEDGMENTS

REFERENCES

Axhausen, K.W., Youssefzadeh, M. (1998) Towards a new european long distance diary : analysis of MEST pilots waves I and II. **Deliverables D3 and D4, a 4th Framework Project**, (CEC/DG VII).

Calzada, C., Houée, M. (1998) Actes du colloque déplacements à longue distance, mesures et analyses. **Rapport SES, ESA Consultants**, M.E.T.L., DAEI, France.

Gouider, N. (1997) Les français voyagent de plus en plus. **Notes de synthèse du SES, numéro 113**, 31-36, M.E.T.L., DAEI, France.

DRE Rhône-Alpes (1995) Enquête déplacements sur la région urbaine de Lyon, bilan du test préalable. **Rapport de la DRE Rhône-Alpes**, IPSOS Regions.