Focusing on connected personal leisure networks
Selected results from a snowball sample

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Author(s):
Kowald, Matthias; Axhausen, Kay W.

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Spatial Distribution of Connected Leisure Networks: Selected Results from a Snowball Sample

Abstract

Leisure travel explanations need to take influences of actors’ social contacts into account. To analyze this influence, social network analysis methods are employed in transport planning. While nearly all earlier projects focused on isolated network components, this paper presents a study collecting data on connected personal networks by taking a snowball sample. Because the project focuses on daily contacts, like leisure or emotionally important persons, the snowball methodology is, to our knowledge, applied for the first time in a ‘real world’ context to collect information on a large survey population.

The paper aims to introduce both the survey methodology and instrument in detail. Empirical results are presented first, giving a brief introduction into questions addressed in the project and the data’s potential to produce new empirical results on the link between actors’ leisure travel behavior and influence of their social environment.

1. Introduction

The goal of transport planning is to understand and model out-of-home movements of the population (see Ortuzar and Willumsen, 2006). Most recent work in this field has concentrated on commuting or peak hour traffic related to work purposes. This travel segment is very important, causing many problems for transport
system managers (see Larson et al., 2006). On the other hand, exploring leisure travel in depth is much more difficult because it is less driven by constant needs and usually “performed very sporadically and ... influenced by changing conditions like weather, traffic conditions, etc.” (Schlich et al., 2004, p. 221). Nevertheless, explaining leisure travel is crucial because it is the dominant segment of travel - at least for Western Europe and North America. In other words, leisure travel is performed more often than travel for other purposes (see different national travel surveys, e.g. Germany (Deutsches Institut für Wirtschaftsforschung, 2003), UK (DfT, 2006), USA (U.S. Department of Transportation, 2004)). In the Swiss Microcensus, the importance of leisure travel is even more pronounced in terms of both miles traveled and time spent on trips (BFS and ARE, 2007). Additional empirical evidence from various other studies indicates that leisure trips are, on average, longer than those for other purposes (Silvis et al., 2006; Schlich et al., 2004).

Besides its quantitative importance, leisure travel is primarily identified as being done to join others in leisure activities. For this reason, it is also referred to as social travel (see Larson et al., 2006) and explanations need to include actors’ social environment because “the distribution of these friends becomes crucial to an understanding of leisure travel and its potential for further growth” (Axhausen, 2005, p. 90). Understanding leisure travel is particularly crucial for urban planning because earlier projects show leisure acquaintances often living in the same urban region (e.g. Larson et al., 2006; Frei and Axhausen, 2007).

In recent years, transport planning has focused increasingly on methods of social network analysis. Investigations using these methods focus on interacting actors, e.g. individuals, groups or companies, and the relationships between them. One can
observe how social structures, emerging from the actors’ interactions, provide opportunities for and constraints on individual activities (see Wasserman and Faust, 2007; Scott 2007). By focusing on actors and their relations simultaneously, these methods proved productive in earlier studies, producing new empirical insights and results in explaining leisure travel (see Larson et al., 2006, Silvis et al., 2006; Carrasco 2006; Frei and Axhausen, 2007).

This paper presents a survey project conducted at the Institute for Transport planning and Systems (IVT) of ETH Zurich and the Institute for Sea- and Land- Transport (ILS) of TU Berlin. The project widens the scope of earlier studies by addressing three challenges. First, it attempts to recruit a large number of respondents, thus creating a unique database of connected personal networks and associated geographical information like home locations and meeting places which is necessary to identify leisure ‘agglomerations’ in urban and rural areas. Second it aims to create a detailed picture of leisure contacts’ geographical spread on a global scale. And finally, it tries to collect information on ego-alter relations as well as alter-alter relations. As the survey is still in the field, this paper introduces both survey methodology and instrument, accompanied by impressions from the field and first empirical results from the complete first wave of the survey.

2. Isolated and connected personal networks

The egocentric network approach is often applied to collect information about actors and their relations, when both are outside an institutionalized setting: e.g., a specific company, school, etc. Here, the actors of focus, called egos, are asked to report their social contacts, the alters. Although there are methods aiming for the
entire social network of persons (McCarty et al., 1997), researchers are more often interested in a specific part of the network.

Basically, two different kinds of survey instruments can be used to collect information on personal networks. First, respondents can be asked to mention all contacts they met in a given timeframe, usually done by using a diary (Fu, 2007; Silvis et al., 2006). The second possibility uses questions offering certain stimuli to focus the egos on specific contacts. This technique is called ‘name generator’ and is usually employed in questionnaires (Wolf, 2004). Besides focusing egos on contacts interesting for the study, the name generator reinforces an ego’s entire memory process. An unsupported collection of social contacts is not recommended, as it is well-documented that the human brain remembers concrete facts much better when receiving a specific stimulus (see Pool and Kochen, 1978). Because of transport planning’s interest in new ways of approaching leisure travel, it is feasible to focus on personal networks this way.

To calculate representative figures for a target population, the egocentric network approach is usually applied to a random sample. This has the clear advantage of capturing a population’s heterogeneity, but it is countered by the disadvantage of surveying only isolated personal network components. For example, Frei and Axhausen (2007) recruited 307 persons in Zurich city and asked them to report a subset of their social network. On average, each person mentioned 12.3 social contacts. This number makes overlapping between two egocentric components - in terms of two egos sharing an alter - unlikely. Even in the case of a small target population, (Zurich city has around 350,000 inhabitants and nearly two thirds of all alters lived within a 25 kilometer radius of the egos’ home location), Frei and Ax-
hausen did not observe shared social contacts. If this phenomenon occurs in similar studies, it would still be very unlikely to observe the shared contacts in significant numbers.

To overcome this limitation, and obtain a better picture of the geographical spread of connected egocentric networks and their topology, a snowball approach can be employed. Snowball samples belong to the family of ascending sampling strategies. A small number of respondents, called ego-seeds, are used as starting points for the snowball chain and are asked to report their contacts. The strategy aims to continue the data collection, with these contacts then asked again to report their personal networks. In other words, to extend the aim of data collection, the alters mentioned in the name generator are, in the case of a snowball sample, also used as the basis for further recruitment. By definition, a snowball sample is “…a technique for finding research subjects. One subject gives the researcher the name of another subject, who in turn provides the name of a third and so on” (Vogt 2005: 300; also see Goodman, 1961; Gabler, 1992). While snowball samples are typically used to collect information on hidden populations, e.g. drug users and other special groups (see Salentin, 1999; Atkinson and Flint, 2001; also see Heckathorn, 1997), they can also be applied to sample large connected ego-centric networks.

Although personal networks are connected to each other, and their topology and geographical spread becomes observable on a global scale in a snowball sample, this kind of sample does not strictly fit the criterion of a random sample (Coleman, 1958). Bias results from the selectivity with which egos mention alters, as well as from the chain method itself, provide a better chance for persons with many contacts to be part of the sample (for an overview see Erickson, 1979). Nevertheless,
snowball samples can (at least in terms of socio-demographics) result in representative samples, and inference is possible. Even though snowball sampling has a long tradition and is used in various research fields, e.g. sociology (see. Schweizer et al., 1998; Salentin, 1999; Atkinson and Flint, 2001), anthropology (Jones, 2003) and medical studies (Mathews et al., 2008), this is, to our knowledge, the first time it has been used to focus on personal networks in a ‘real world’ context. In other words, this study is not searching for a specific population, but instead seeks all possible (leisure) contacts, and collects information on a large survey population.

3. Survey instrument and -protocol

The project starts with 60 ego-seeds from a stratified random sample using age, sex and home location criteria from the population of Zurich Canton, Switzerland. Continuing with their alters, the snowball process plans to recruit at least 900 respondents reporting their personal networks, creating a database of around 10,000 alters. All survey work, including developing appropriate methodology, designing the survey instrument, fieldwork and parts of the data analysis will be performed at ETH Zurich. Afterward, data weighting, correction of bias resulting from the snowball chain, extrapolating data to the Swiss population and implementing results in an agent-based transport simulation will be done at TU Berlin (see Illenberger et al., 2008; Illenberger et al., 2009).

The project harnesses two sources of information by splitting the survey instruments into two parts: part one, a questionnaire collecting data on personal networks, and part two, an activity diary focusing on daily and joint activities. Using such a survey instrument makes it possible to observe social contacts in terms of
home locations and meeting places, and model spatial movements on an urban scale.

The questionnaire has four sections. First, the egos are asked to report their own socio-demographics, complemented by information on their mobility biography. The second part is a name generator. Because literature on name generators recommends using more than one question and several concrete stimuli (Marin, 2004; Marin and Hampton, 2007) to survey the network of interest as completely as possible, the present instrument asks for leisure contacts as well as emotionally important contacts for the egos. The questionnaire provides space for 40 names. Egos wishing to report more names are asked to record these on an extra sheet of paper, so that, in principle, the number of potential contacts is unlimited. Third, respondents are asked to give additional information about each alter mentioned in the name generator. This part, called name interpreter, focuses on alters’ socio-demographics: i.e. how and where ego and alter became acquainted with each other, and what mode and frequency they use to stay in contact. As alters are used for the further recruitment process, it is also necessary to obtain their exact postal addresses. In the fourth part of the questionnaire, respondents are asked for details on the structure of their personal networks by mentioning groups of alters who are making plans to spend free time together. Each ego is asked to mention the context of such meetings by name and, with the help of predetermined shortcut from the name generator, all persons joining these groups. This last part of the questionnaire, called a sociogram, is influenced by the work of Hogan et al. (2007) in urban Toronto. In comparison to their sociogram, which was used as an extension of the name generator technique, involved an interviewer and implied a high amount of
response burden, the present questionnaire uses a standardized and easy-to-handle form for collecting information on alter interrelations from multiple respondents.

All persons participating in the questionnaire are also asked to participate in the activity diary. Only a subset of the questionnaire population is expected to participate in this second part of the instrument, as it implies additional response burden. The respondents are asked to report all trips and activities they performed on eight consecutive days. Collecting information over an eight-day period will provide insight into the number of weekly routines. Respondents are asked to categorize the reported activities in detail, mention the number of persons joining them and, again with the help of a predetermined shortcut, confirm which participants were mentioned in the name generator of the questionnaire. A second block of items focuses on the planning backgrounds of activities by asking how often they have been done before, what participants planned it and how long in advance it had been planned.

Using the snowball approach makes it necessary to ask for confidential information. Beside the names of alters and kin-contacts, postal addresses must be collected to allow both geo-referencing of egos’ and alters’ home locations and continuation of the sample. To establish trust between ETH - as the surveying institution - and the respondents, additional arrangements are employed to increase the response rate.

Following the tailored design method (see Dillman, 2000), a multi-contact strategy is used to open and achieve contact with the respondents. An Internet page providing detailed information about the study and each researcher involved increases the transparency of the project. A greeting postcard was designed to use an
effect resulting from the snowball chain. By asking egos to send the greeting card to their alters, the recipients realize that a person they already know and trust has participated in the survey, making their own participation more likely. All potential respondents receive a 20 CHF incentive, or the equivalent in the currency of the country where they live, with the questionnaire. Sending money at this point in the recruiting process confirms trust in potential respondents’ honesty - a proven strategy that significantly increases response rates.

To improve data quality and establish a basis for comparisons with data from the snowball iteration levels, ego-seeds are not initially informed about the incentive, but do receive money after their participation. These participants are also asked to complete the questionnaire with the help of an interviewer to avoid misunderstandings resulting from the survey instrument. Questions about the social contacts’ names are asked several times to ensure maximum collection from the network of interest. If ego-seeds do not want the help of an interviewer, they may also fill out the questionnaire on their own. To recruit alters as thoroughly as possible, both parts of the survey instrument are designed in a paper and an electronic version in German and English.

<<Insert Table 1. here>>

4. The response rate

The snowball sample will be surveyed by running three sub-samples successively. Each sub-sample will be started with 20 ego-seeds to offset homophily, a well-documented phenomenon describing a frequently observed similarity between egos and alters (McPherson et al., 2001). Whether homophily results from underly-
ing network structure or is a pre-condition for an actor when choosing social contacts (Steglich et al., forthcoming), it implies, in the case of snowball sampling, the risk of being captured in a very homogeneous cluster. Using multiple sub-samples allows both time for reaction to this phenomenon and creation of a more representative final sample.

Data collection for sub-sample 1 in the questionnaire is finished. Diaries for sub-sample 1 population and the questionnaire for sub-sample 2 are in the field. All figures and calculations reported here are based on sub-sample 1 questionnaires. The socio-demographics of the sample fit is good when comparing to the Swiss Microcensus Transport (BFS and ARE, 2007), a nationally representative sample implementing a travel diary CATI survey. Only the age differs; the sub-sample 1 population - with an average age of 52.3 years - is significantly older than the overall population (average age: 42.3 years). The further sub-samples will allow to address this.

As far as recruitment, 20 ego-seeds out of 137 valid addresses from a stratified random sample participated, a 14.6% response rate. 17 accepted the help of an interviewer. The 20 ego-seeds mentioned an Iteration 1 population of 250 alters. Some egos did not report the postal addresses of their contacts, some postal addresses were wrong and could not be corrected by the survey team, or the alters were younger than 18. Excluding those persons, 180 valid addresses were contacted, of which 68 respondents, 37.8%, returned a completed questionnaire. These participants, the Iteration 1 egos, mentioned an Iteration 2 population of 998 alters. Again, some addresses were not reported or had to be excluded. In addition, 105
names were submitted a second time (re-identified), and could not be used because they were already part of the sample, having been asked for participation either on the level of the 20 ego-seeds or on Iteration level 1. In all, 541 addresses on Iteration 2 were valid and contacted. 142 of these participated as Iteration 2 egos. Sub-sample 1 stopped at this level. Overall, 230 respondents were recruited using 858 valid addresses. The alters named on Iteration 2 will be checked for re-identification and validity.

A rating system from commercial survey research was used to estimate response rates and predicted a share of participants of around 15% (see Axhausen and Weis, 2009). The present response rate of 26.8% is higher than expected, considering the high amount of response burden from the questionnaire and the level of confidentiality implied in the questions. This demonstrates the effectiveness of efforts to increase the response rate.

The recruitment process is summarized in Table 2. A few respondents on Iteration 1 to 3 are labeled as participants ‘without recruitment’. For those persons, only postal addresses were available, but no phone numbers. They received the questionnaire without recruitment call. Correcting the spatial

<<Insert Table 2. here>>

5. Some personal networks’ characteristics

230 participants mentioned 3897 alters in the name generator: 16.9 contacts on average, with minimum 0 and maximum 40. Egos who do not mention alters are excluded from further analysis of the network structure. By definition, completely isolated persons can, other than at ego-seed level, not be part of a snowball sample.
If a person has no social contacts, a snowball chain could not reach this alter. Following this argument, it can be assumed that the zero-contact-respondents did not want to report their personal network. Excluding them, 215 egos reported 18.1 alters on average.

209 respondents, 97.2% of all egos mentioning names in the name generator, also reported the relationship of their alters to each other by identifying cliques of alters making plans to spend free time together. Some respondents did not mention such cliques. Those persons are not excluded from the further analysis, as it is possible that some personal networks are very sparse indeed. Following this line of reasoning, 215 participants reported 681 cliques, 3.2 cliques per egocentric network, on average, with minimum 0 and maximum 12. The cliques contain 4.5 members on average with minimum 2 and maximum 28.

To get an idea about egocentric network attributes, some descriptive statistics are presented in Table 3. Egos and their related ties are excluded from the analysis because, following the logic of the egocentric network approach, they would always be the most central actors. In addition, 6 persons reporting only one social contact are excluded, as these network components only include an isolated actor if the ego is removed. The indices for density, degree- and betweenness centralization are standardized, with maximum 1 and minimum 0.

On average, each of the 209 personal network structures (leisure and emotionally important contacts) includes 18.3 members of which 7.9 (43.6%) are isolated alters. These persons do, in egos’ opinion, only join ego but no other alters from that network in leisure activities. Excluding isolated persons, each network in-
cludes 2.4 components, each component consisting of alters somehow connected to each other. It is important to note that those groups are not similar to the cliques mentioned by egos when asking them to report their personal network structure. By definition, a clique is a maximum connected sub-graph, where there is no need for members of a component to be fully connected to each other. The definition of a component merely demands a path between all actors in the component and no connection to actors not belonging to the component (Wasserman and Faust, 2007).

The concept of density describes the proportion of all possible connections between actors of a given graph and all actual connections. The 0.17 average density found for network components, including isolates, means that 17% of all possible connections are realized. The measurements of degree- and betweenness centralization are complementary to the density concept. Both of the first terms are global measurements comparing the topology of personal network structures to each other. The concept of degree centralization defines to which extent a network structure is organized around its most central point. The concept of betweenness centralization measures to what extent an actor lies on the shortest path between two other actors. With a degree centralization of 0.17 on average, alters in egocentric network structures are nearly equally connected to each other, meaning they are usually not organized around a central actor, although there are structures of degree centralization 1.00. The betweenness centrality of 0.02 on average suggests that all egocentric structures are closely connected in the same way, usually without central gatekeepers that connect many alters to each other. Again, it can be seen that, although nearly all isolated egocentric structures have a similar low betweenness
index, there is some variance in the structures, with minimum 0.00 and maximum 0.33.

<<Insert Table 3. here>>

26.3% of all alters reported in the first sub-sample were kin-contacts whereas 44.8% were categorized as friends and 28.9% as acquaintances. The strength of relationship was also measured by asking if respondents would contact their alters when they needed help or wanted to discuss important problems. Close relations are defined as alters that an ego uses for both concerns. Somewhat close alters are those that fit in only one category and weak relations are alters who the egos do not contact for any of these concerns. Building on this definition, 39.8% of all contacts can be defined as close, 27.5% as somewhat close and 32.7% as weak contacts. On average, a relationship lasted 23.8 years with a range from new relations, zero years old, to older ones, with a maximum of 83 years.

In homophily, degree of similarity depends on the characteristic under investigation. Normally, similarity increases when all kin contacts are excluded, as ego cannot choose those contacts. The discussion whether homophily results from a network structure or is a pre-condition for choosing social contacts (Steglich et al., forthcoming), has been mentioned earlier. However, a higher degree of homophily can, in the present study, also be observed in characteristics over which the egos have potential control when choosing other persons as leisure contacts. Using this logic, the strongest degree of homophily is observed for age after excluding all kin contacts: 79.1% of alters are within ego’s ± 10 years; 59.1% of alters match ego’s age ± 5 years. The next significant attribute is gender, with 77.5% alters sharing
egos’ characteristics. The degree of homophily decreases in terms of education and civil status and the differences between in- or excluding kin contacts also diminish. But the similarity is still highly significant when employing a chi-square independence test to check expected against observed values. Table 4 shows some attributes checked for similarity.

<<Insert Table 4. here>>

Overall, the 20 components, each started by an ego-seed, do not overlap in sub-sample 1. They do not form a joint network yet. Each component has a maximum contact chain of length three, from the ego-seed to the Iteration 3 alters. While the study does not follow the original “small world approach” suggested by Stanley Milgram (1967) (i.e. does not use the entire personal network of the respondents, only the subset of leisure and emotionally important contacts) such overlaps are expected in the next sub-samples. Three arguments support this expectation: first, most small world studies mention a contact chain of length five to eight connecting entities in the entire world population to each other (see Pool and Kochen, 1978, Schnettler, 2009). Second, the survey population is, as shown above, characterized by a high amount of homophily. Third, the survey population is highly clustered in a close-up range in terms of geographical distance between persons, as shown in the next section. In addition a forth and fifth iteration will be added to the snowball chain in the second sub-sample.

6. The egos’ and alters’ home locations and contact strategies
All survey spatial information is geo-referenced. The database from sub-sample 1 contains 2923 alters’ postal addresses. In examining home locations, it is remarkable that the sample, resulting from a snowball chain of people from all over the world, is highly clustered in Switzerland. Within Switzerland, most persons live in the German speaking area, and, more specifically, here in Canton Zurich where the sub-sample was started. In other words, most alters live close to their egos. In terms of great circle distances, 75.3% of the alters can be characterized as local contacts, living within a radius of 25 km around the ego’s home location. This is ‘local’ as understood by a motorized society. Another 17.3% are regional or national contacts living in a radius greater than 25 and smaller than 100 kilometers. International relations, defined contacts living in a radius of more than 100 and less than 1000 kilometers, are represented by only 6.1% of all alters. Even fewer relations, 1.3%, can be characterized as intercontinental ties with more that 1’000 kilometer distance between egos and alters. The average distance is 115.1 kilometers with minimum 0 and maximum 17,900 kilometers.

In summary, respondents mix local, nationwide and international ties in their personal network, although most leisure and emotionally important contacts seem to live near egos’ home locations. This finding is confirmed by other studies (Larsen et al., 2006, Frei and Axhausen, 2007) and shows the importance of persons living in the same urban or rural area.

Electronic information and communication technologies (ICT) are both a replacement for, and complement to, travel; ICT substitutes for physical movements as it allows subjects to stay in contact over long distances and has gotten substan-
tially cheaper in the last few years. ICT can also complement face-to-face meetings (for an overview on the discussion about ICT and travel behavior see Mokhtarian and Salomon, 2002; Axhausen and Frei, 2007b; Mok, and Wellman, 2007; Larson et al., 2008). The present study also provides information on that topic.

As far as leisure contacts, the dominant contact mode is face-to-face meeting: not surprising, as most contacts are of local or regional character. Somewhere at a distance between 37 and 42 kilometers contacts per phone become more important than face-to-face meetings. Nevertheless, physical meetings remain very important even at distances of over 1,000 kilometers. While the relationship between distance and contact mode can, for face-to-face, phone and e-mail, be described as linear, whether of de- or increasing character, SMS contacts seem to follow another trend. Their share on the overall contact frequency is relatively constant, with a peak of 17.7% at a 7.2 kilometer distance between egos and alters. After this point, it decreases. In contrast, Internet contacts, defined as all kinds of online instant messaging seem to be much less affected by the distance between persons. Nevertheless, instant messaging definitely seems to be very important for those using it, predominantly for younger respondents. Figure 1 shows shares of each contact mode for geographical distance deciles with the first distance class defined as contacts living within a 1-kilometer radius around ego’s home location. Using a logarithmic scale on the x-axis, each class is plotted at the mean distance of that class.

<<Insert Figure 1. here>>

Geographical distances by communication mode and frequency can be used to calculate egos’ social activity space. This is done by using the confidence ellipses
approach, that can be interpreted as a two-dimensional generalization of the confidence interval (Vikrant, 2005). The approach is parametric and assumes a bivariate normal distribution. The form of the approximation is fixed and equates the smallest elliptic area that, with a predetermined likelihood, e.g. 95%, contains all given observations. Calculation of confidence ellipses is relatively unaffected by sample sizes, provides the opportunity of assuming different levels of confidence and can be used for international comparisons. But the approach can be problematic. The ellipses, as a result of their fixed form, often cover empty areas, where no interaction takes place (for a summary see Schönfelder, 2006).

The basis for the ellipses presented in this paper is a two-dimensional 95% confidence interval. The approach uses egos’ and alters’ geo-referenced home locations weighted by the contact frequencies. The ellipses are calculated for face-to-face meetings, referred to as the activity space of an ego, and for the sum of all ICT-communication modes and –frequencies (phone, e-mail, SMS and chat) labeled as an ego’s social space.

Figure 2 (for activity space ellipses) and figure 3 (for social space) give an overview of the ellipses’ sizes. In comparing both distributions, a new indicator for the complementary nature of face-to-face meetings and the use of ICT technologies can be observed. Clearly, most ICT is used to reach persons living near the home location and the frequency of the activity space ellipses is also high in this area (up to a size of 1,000 square kilometers). No ICT ellipses’ size is found between 100 to 5000 square kilometers. Usually, ICT ellipses are biased by persons living further away from each other, where face-to-face meetings are less frequent. In summary, distribution of the ellipses’ sizes is quite similar to what has been found for com-
munication modes and frequencies. At some point over greater distances (here, sizes of over 5000 square kilometers), ICT ellipses become dominant. At sizes up to this threshold, activity space is dominant - with the exception of very small ellipses under 100 square kilometers.

<<Insert Figure 2. here>>

<<Insert Figure 3. here>>

7. Conclusions

In recent years, studies in transport planning have used social network analysis methods to find new explanations for leisure travel. While these investigations have produced new empirical insights and results, the use of the social network approach is still in an early stage. The project described in this paper fills the gaps in the data reported by literature so far by focusing on connected personal networks, daily activities and related spatial information. To observe connected egocentric components, a snowball sample has been taken. To our knowledge, this methodology is used for the first time, both in a ‘real world’ context, like leisure contacts, and in a project of this size. We are neither limited by communication medium (face-to-face, telephone), nor a specific location (school or firm) nor occupation (co-authorship, actors, senior officers of firms).

Although the study is currently in the field, data from a first sub-sample is available. The recruitment rate is highly satisfying, particularly given the nature of the sampling methodology. The personal network data shows the survey instrument is working well, especially in the cases of the name generator and items collecting information on the structure of actors’ personal networks.
The structure of the leisure network is viewed in minute detail, introduced in terms of descriptive characteristics like density, number of isolates, degree- and betweenness centralization. Egos’ and alters’ characteristics are compared in certain attributes and checked for similarity. On a global scale, no overlaps have been observed between components started by ego-seeds. Even though the project does not follow the original small world approach, overlaps are expected in the case of the next sub-samples. On one hand, overlaps are likely to happen following the familiar theory of six degrees of separation between each pair of persons; on the other hand, the sample is highly clustered in terms of geographical distance between egos’ and alters’ home locations.

Most relationships are of ‘regional’ or ‘national’ character, indicating that people seem to mix local, national and international ties in their personal networks. The dominant contact strategy is meeting physically, face-to-face. At a distance of around 40 kilometers, contact by phone becomes dominant, but face-to-face meetings are still important at distances over 1,000 kilometers. A similar distribution can be found at the confidence ellipses.

Fieldwork is expected to end in summer, 2010. Currently, the second of three sub-samples is in the field. The next steps in data analysis will be the estimation of multi-level models on the factors influencing, for instance, the size of a personal network component, who chooses whom as a contact, or how long relationships last. In addition, all data from the activity diaries must be analyzed.

Notes
1. A) Please list the people with whom you make plans to spend free time (Examples: errands, sports, club or organized activities, cultural events, cooking together or going out to eat, taking holidays or excursions together).

B) If there are other people with whom you discuss important problems, please list them here.

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Captions

Table 1. Survey protocol
Table 2. The response rate of sub-sample 1
Table 3. Network attributes
Table 4. The similarity of egos and alters
Fig. 1. Annual contact frequencies by -modes for the distance percentiles between the egos’ and alters’ home locations
Fig. 2. Ellipse sizes of the egos’ activity space
Fig. 3. Ellipse sizes of the egos’ social space