

Using Ego-network in surveys: methodological and empirical research issues.

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ABSTRACT

Categories and Subject Descriptors

J.4.3 [Computer Application]: Social and Behavioral Sciences—*Sociology*.

General Terms

Measurement, Design, Human Factors.

Keywords

Social Networks, Research design, Ego-centered network.

1. INTRODUCTION

The paper is aimed at illustrating the use of social networks and specifically ego-centered networks (or personal networks) in surveys. The discussion focus on the general framework of an extensive research project on social capital (SC) among small entrepreneurs in Italian industrial districts. By means of CAPI techniques, personal networks of a sample of entrepreneurs (N= 352) have been collected and different dimensions of SC have been measured looking at main aspects of the entrepreneurs activity (economic relations, family and friends, membership and participation to associations)red. The paper describes the methodological aspects of the project, discuss some results and concentrate on the design of empirical research with ego-centered networks.

2. SURVEYS AND SOCIAL NETWORKS

Recently, part of the attention in sociological research has been paid to the opportunity to combine, by means of social network analysis, information about individual relational resources and about structure of the social context [2]. In particular, the use of Ego-centered network in surveys increased [8] and this brought up methodological issues concerning personal relations data [6]. Part of the debate concentrated on the operationalization of the concept of social capital (SC) and aspects concerning social support. Researchers proposed several indicators of network structure for SC and adopted them in network empirical research on individuals, groups, and populations.

2.1 Defining Social Capital

The socio-economic literature identifies three main approaches to social capital (SC) analysis. The first one, the ego centrist paradigm, is situated within a research tradition grounded on methodological individualism. It involves the analysis of the link between individual and collective performance and the sets of resources (social, economic, political) available directly and indirectly. Another paradigm is defined the socio –centric

approach, since it involves the analysis of the SC produced by a society; its focus its mainly on the effects of SC on social relations and in particular social welfare. The third line of analysis concerns the macro effects of social capital and concentrates on the relations between development and institutions with an emphasis on comparison between areas and regions. Whilst different attempts, it proved difficult to combine these three perspectives in empirical research settings and establishing an hybrid methodological framework [4].

A more specific understanding of SC involves necessarily the effort to operationalize the concept, define its dimensions, the level of observation and identifying the main indicators. Specifically, network literature explores the strategies to select and measure SC in networks [1], whether through personal contacts (name generator approach), acquaintances (position generator approach) and instruments (resource generator approach) available at individual level [7]. The combination of ‘classical’ theoretical framework on SC and recent developments of network analysis on social support [5] brought on also a relational perspective. According to this perspective those aspects linked with patterns of access to economic resources or related to participation in specific social groups are extremely relevant.

A project carried on by a research group of the University of Trento adopted a relational perspective for analyzing SC at the individual level. The aim was to evaluate SC of small entrepreneurs by means of their relations at the individual level (ego centered networks) and the type of resources (economic, political, institutional and social support) they could access through these relations. Since the activity of the small entrepreneurs is personally based we can expect that the characteristics of the personal network (and its specific sub-network) approximate the type of relational resources he/she has access to, and approximate his/her SC.

3. MEASUREMENT OF SOCIAL NETWORKS

The strategy adopted to investigate personal networks was the Name-generator technique; Ego – the entrepreneur – could thus cite up to eight contact persons /Alters (distance 1) for any of the four network sections. Data about the status, duration and intensity of the contact, type of relation and spatial location of Alters were collected for each contact person (Alter matrix) together with the exploration of second order knowledge among cited Alters (distance 2). The purpose was to measure individual SC as the combination of different types of social relations (relational networks) which may be activated by the entrepreneur to access resources and information relevant for his professional activity. Two main personal networks were considered (expressive relationships and instrumental ones). Expressive

network refer to affective relationships (friends, family); while to describe relationships involving directly the firms' production we consider four types of sub-networks (economic sub-network, political sub-network, institutional sub-network). Moreover, since the study was intended to give information about the creation and transformation of SC, relationships were investigated the entrepreneur's network in two separate time points. Expressive network was investigated only at time 2, as the reliability of reconstructing supportive relations was expected to be less accurate [3].

3.1 Empirical Data Collection

Empirical research involved 352 interviews with small entrepreneurs in six different district areas of Italy, producing 352 Ego-networks and a total number of Alters equal to 5.282 names. The interviews were administered with CAPI (Computer Aided Personal Interviews) and carried out by experience researchers: their standard duration was between 1 and 2 hours and despite the duration the rate of response was extremely high (86% of the first sample and only 2% of incomplete networks). Table 1 describes some features of the networks (size, density).

Table 1 – Personal networks of entrepreneurs (N=352).

	Mean	Std. Dev.	Var.	Range
Size ego-network T1	4,26	2,33	5,42	12,00
Size ego-network T2	5,28	2,61	6,78	15,00
Density ego-network T1	0,76	0,27	0,07	-
Density ego-network T2	0,70	0,25	0,06	-
Size expressive network (T1)	4,34	2,15	4,61	11,00

4. METHODOLOGICAL ASPECTS

The project was also aimed at development of research design techniques and field strategies for collecting ego-centered networks. The research overall design of the study involved three phases: 1) the construction of a social network questionnaire for interviewing entrepreneurs, 2) selection of the sampling areas, and 3) survey sampling.

The questionnaire involved several testing procedures, both on the structure of questions and its internal structure. The study was intended to implement a comparative approach to SC and to evaluate territorial area on the bases of network properties. First, selection of the district areas was carried on the basis of macro-indicators of economic performance and civicness; a second sampling procedure choose the subjects to be interviewed on the basis of their firm's size (less than 65 and more than 4 employees) and production sector (old/new economy).

4.1 Reliability and Quality of Data

Several automatic and manual controls were set in order to assure the quality of data and their availability in the right format to be analyzed. CAPI standardized procedures avoid the modification of the sample and biased selection of interviewee [4]; moreover each interviewer personally controlled the data collected confirming the responses of the entrepreneurs, backup eventual no-response items and storing matrices in the proper format.

As for the reliability of measure of SC the analysis considered the relation between the complete network and its sub-nets as an

analogue to the construction of a multiple dimensions index based on size of the network indexes. If the measurement framework is correct the single components of SC (economic, political and institutional sub-networks) should refer to different dimensions which are significant only when combined in the same complete network at time 1 and time 2. Analysis shows that the reliability of measure (Chronbach alpha) of the complete network (0.68) over the three sub-nets (0.11) is relevant at time 1; at time 2 the subnets are more integrated as they include also the expressive network (0.28), but the complete network is still more reliable (0.69).

A second aspect of the quality of data concerns the interaction effects among the sub-networks. Since for every point in time was potentially possible to draw at least three sub-networks the analysis of the data should pay attention to the problem of interaction and network net composition (number of alters). In particular, the problem of interaction among sub-networks was detected comparing the number of alter in each sub-network and the percentage of overlapping citations in time 0 and time 1 ego-network. This comparison gives an idea also of how much networks vary through time and change their internal composition of alters. Results show that the economic sub-network is the less variable one, with more than 35%.

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