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Using Ego-networks in surveys:  
methodological and research issues

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## On using ego-networks...

Applications of personal networks (ego- networks) in surveys are now common but...

- Less interest in developing measures
- Computational problems and data management
- Concerns about collection and production of data
  - fieldwork needs proper management and design
  - net boundaries and case selection more difficult
  - interviewers may introduce biases
  - web surveys or email considered as more reliable sources

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# So....why using ego-networks?

- Design of a study can be substantially improved and collection costs may be reduced by technology (e.g. using CAPI)
- Can be using generated different using different designs (name generator, resource and position generator)
- Ego networks corroborate a specific theoretical perspective
  - Individual vs group setting
  - Criteria of choice of social circles
  - Impact of social changes on personal issues
- Suitable for theory building (e.g. sociological concepts)

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# Applications of the ego-centered approach.

## Two studies of Social Capital - I

- Short description of two studies:
  - small entrepreneurs (complex multilevel study with qualitative parts) → 352 subjects in 6 different areas
  - managers in Tuscany (paper and pencil questionnaire) → 123 subjects in privatizing and private companies
- The studies gave opportunities to develop instruments and fieldwork practice in managing such studies.
- In both the studies the ego-networks of the subjects was collected and several dimensions of SC have been analyzed.
- Test of some hypothesis concerning the concept and mechanisms of SC.

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## Using the ego-centered approach in SC research.

- Social Capital is a sociological concept with several definitions...but it concerns specifically the relations between individuals and their effectives
- The study of SC involves some methodological and theoretical problems such as:
- Which is the best level of observation for social interactions?
- How we measure them and which of these relations are SC?

→ The relational approach to SC.

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## Relational dimension of social capital and social networks

This approach underline the relevance of networks for social structure:

- communication at the personal and group level → *Complexity and interdependence*
- presence and development of collective action → *Local vs global phenomena*

It suggest also the presence of different forms of social capital and their effects/side effects on the subject

- *Bridging* – communication flux, increase of opportunities and innovation
- *Bonding* – social cohesion, support and integration with the community

## Social capital in ego-networks – general perspective

<i>Aspect of SC</i>	<i>Description</i>	<i>Indicators in the questionnaire</i>
Type of social relations	Weak ties= relation characterized by low emotional intensity, low intimacy, contingent to the context (acquaintances); Strong ties= relation with high emotional intensity, frequency of contacts and intimacy, characterized by reciprocity and time spacing (friendship).	Frequency of contacts, intensity of contacts, time of contacts (I have been knowing X <i>since year...</i> )
Openness/ closure of personal networks	Density of ego-network with values from 1 (maximum of closure) to zero (maximum openness).	Reciprocity of knowledge between Alters (matrix).
Size of personal networks	Size of network as a proxy of accessible social capital of ego.	Total number of citations in main network.
Heterogeneity / Homogeneity of networks	Contents of the three networks.	Status, gender, occupation of alter.

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## 1st study - Personal networks of small entrepreneurs

- The research design of the study involved three phases:
  - a) the construction of a social network questionnaire for interviewing entrepreneurs
  - b) selection of the survey areas (6 districts North/South) on the basis of macro-indicators of economic performance and civiness
  - c) sampling the subjects to be interviewed on the basis of their firm's size (< 65 employees) and production sector (old/new economy).
- Moreover the study involved a large process of collection and analysis of several sources of information about SC and economic relations.

# Research design of the study on entrepreneurs

	Subject	Type of data	scale
Quantitative	Civicsness, generalized trust, voting behavior	Macro indicators from national surveys	Regional / province
Qualitative	Institutions, entrepreneurship, culture and economic practices	Interviews, reports	Local (town, district area)
Network	Relational social capital,	Network data (interactions and preferences of ego)	Individual

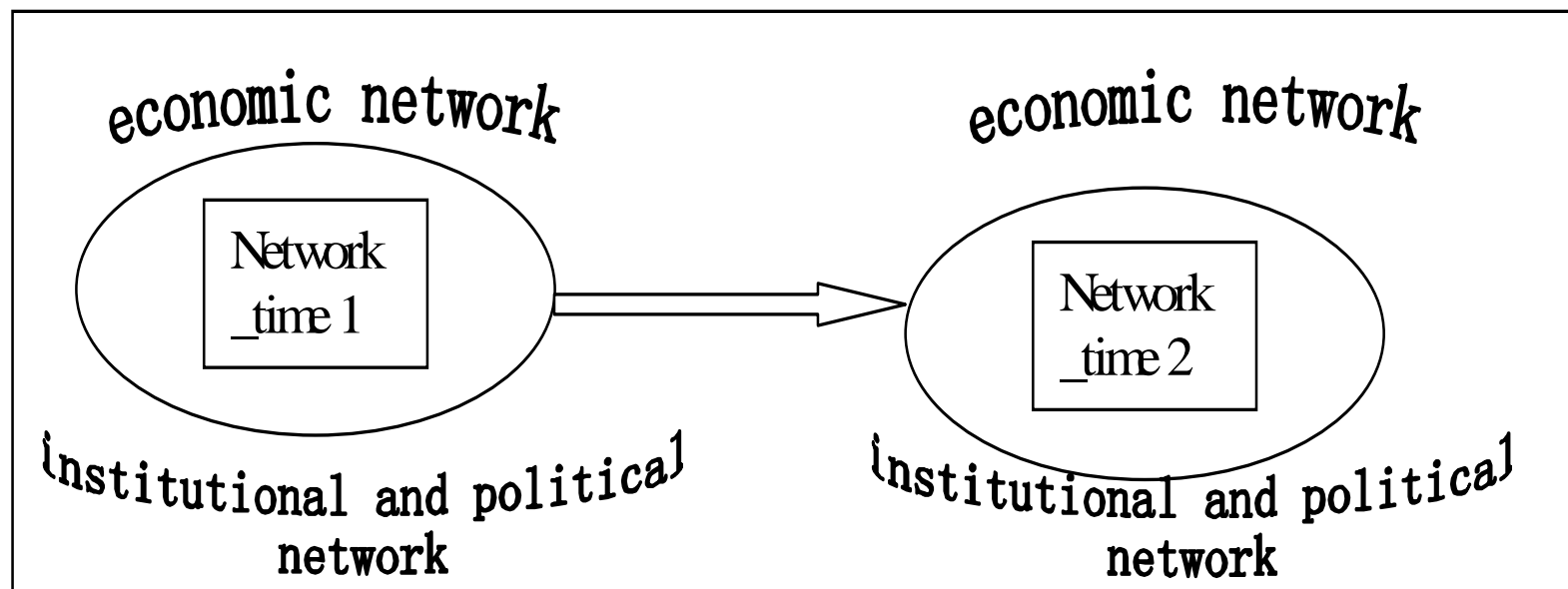
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## Dimensions of SC - type of relationships

- Ego-centered networks concerning two forms of relationships: expressive relationships and instrumental ones
- Four types of sub- networks (SC dimensions)
  - i. economic sub-network - relationships involving directly the firms' production;
  - ii. political sub-network - relations established with political referents:
  - iii. institutional sub-network - those one established with public institutions and professional associations;
  - iv. affective network - family and friends.

## Dimensions of SC - change through time

Economic and social relations develop through time --> data refer to a crisis/ development phase when the relational networks of the entrepreneur established (time 1) and the actual moment (time 2).



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## Social capital indicators (networks)

- a) Type of social relations – weak ties VS strong ties
- b) Openness/ versus closure of personal networks - density of the personal network and reciprocity of knowledge between cited acquaintances and friends (Alters).
- c) Size of personal networks and social characteristics of the Alters - proxy of accessible social capital of ego and heterogeneity/ homogeneity of networks.
- d) Multiplexity of relations - overlap of functions played by members of the networks and cohesion of relations between Ego and Alters.

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# Validity and Reliability of Data

- Collection of data was positive (selective sampling criteria but only 10-5% refusal);
- rate of response was extremely high (86% of the first sample) and the quality of the data was also very good (only 2% of incomplete networks).
- Reliability of measure of SC for complete network was good (at time 1 Chrombach  $\alpha = 0.68$  and  $\alpha = 0.69$  at time 2 while expressive networks are less reliable (consistent with literature findings);
- Effect of area accounts for 0.12 on size and 0.13 density change;
- Economic sub-net less variable one in time – 35% of change in cited alters from time 1 to time 2.

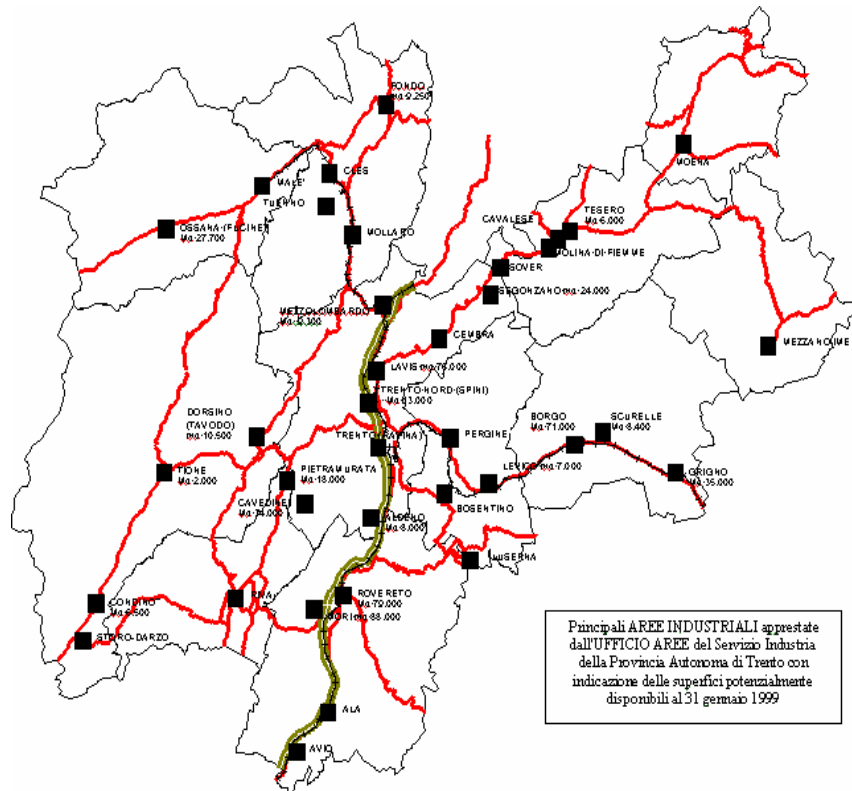
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## The personal networks of the entrepreneurs. Some results from the study.

- *Structure of the network* of the entrepreneur at the beginning of the activity is composed mostly of economic relations – instrumental role of SC - then when the activity develops it becomes more evident a separation of expressive network with other (economic and institutional) network
- Two main circles of *social participation* – a core (family and friendship) and an extended one (time dependant and business oriented).
- *Transformations* may occur in the composition of the networks → some clients or contractors become friends / new family links and re-entering of old friends in the core network;

# The small entrepreneur – the district of Vallagarina

61 interviews - CAPI questionnaire



Average age of firm- 17 years

83% has previous work experience as self-employed or dependant

48% has one or more associates

74% works with family members

51% have less than 15 employees

42% prospective employees recruited through institutional channels

39% has less than 10 clients

51% national oriented market

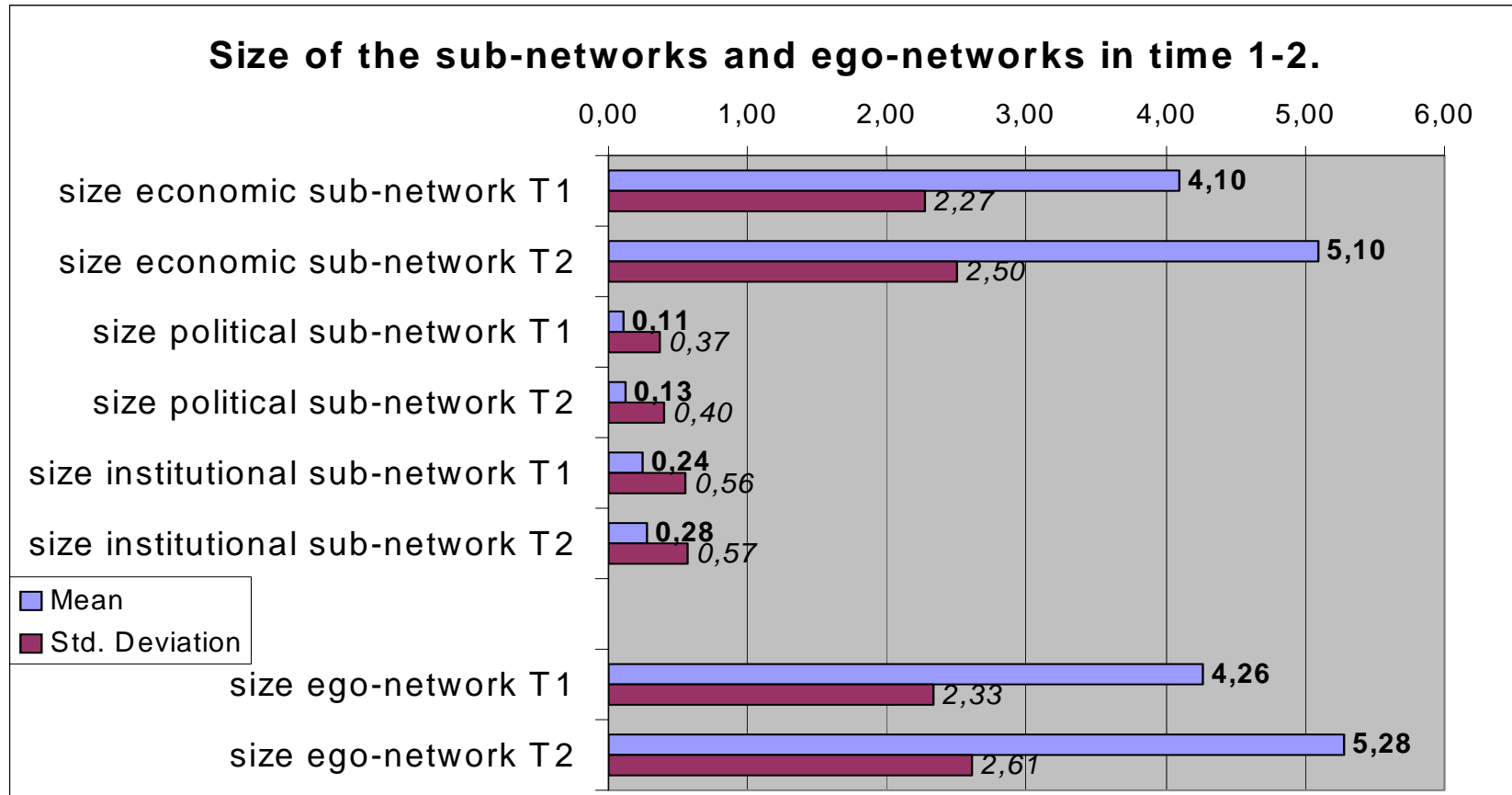
Sources of investment for the start up- personal resources and banks 75%

82% associated to industry organizations

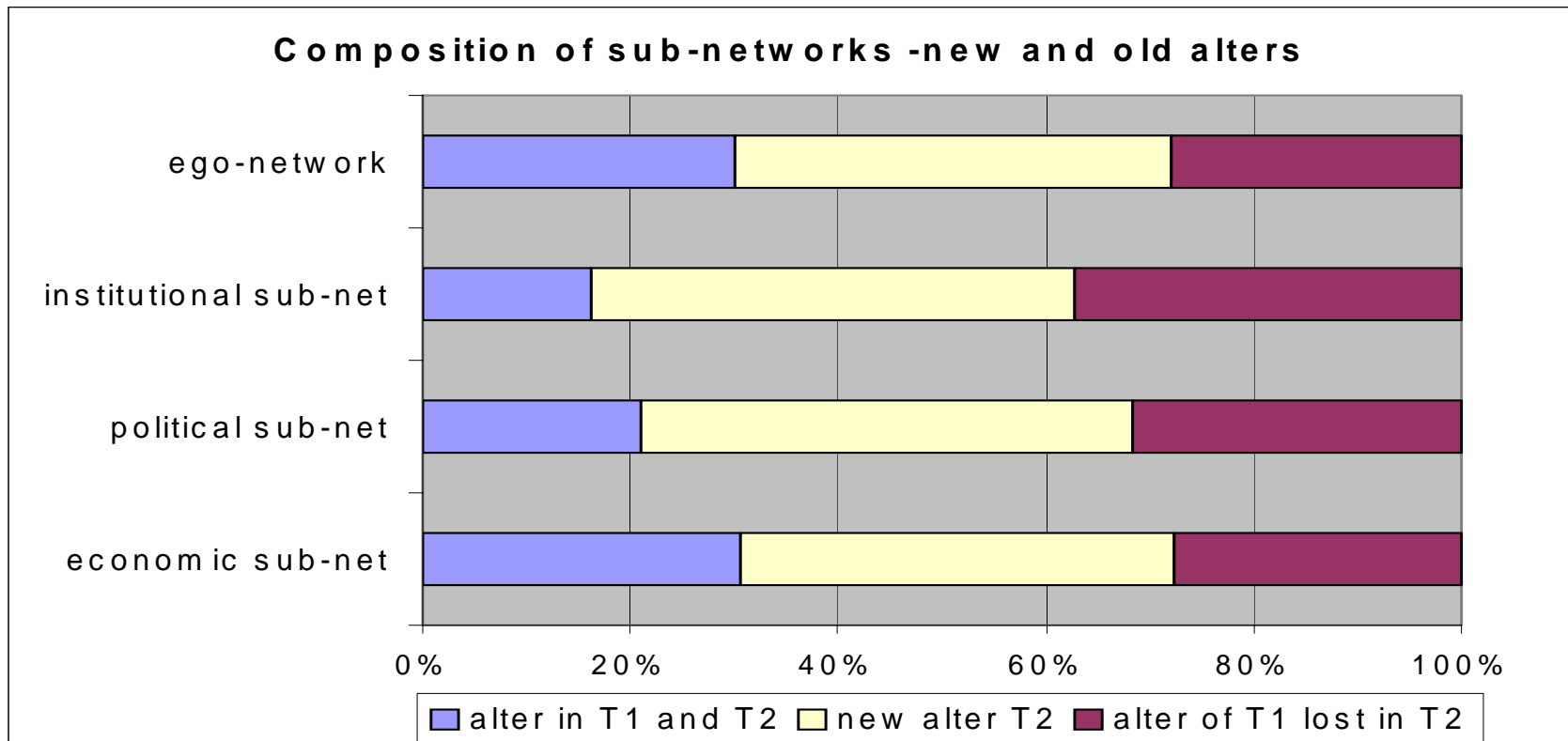
## Economic and social networks: size and density

Table 1.1 –Size and Density				
	Mean	Std. Deviation	Mean	Std. Deviation
size economic sub-network T1	4,10	2,27	0,77	0,27
size economic sub-network T2	5,10	2,50	0,71	0,25
size political sub-network T1	0,11	0,37	1,00	0,00
size political sub-network T2	0,13	0,40	1,00	0,00
size institutional sub-network T1	0,24	0,56	0,76	0,42
size institutional sub-network T2	0,28	0,57	0,86	0,33
size ego-network T1	4,26	2,33	0,76	0,27
size ego-network T2	5,28	2,61	0,70	0,25

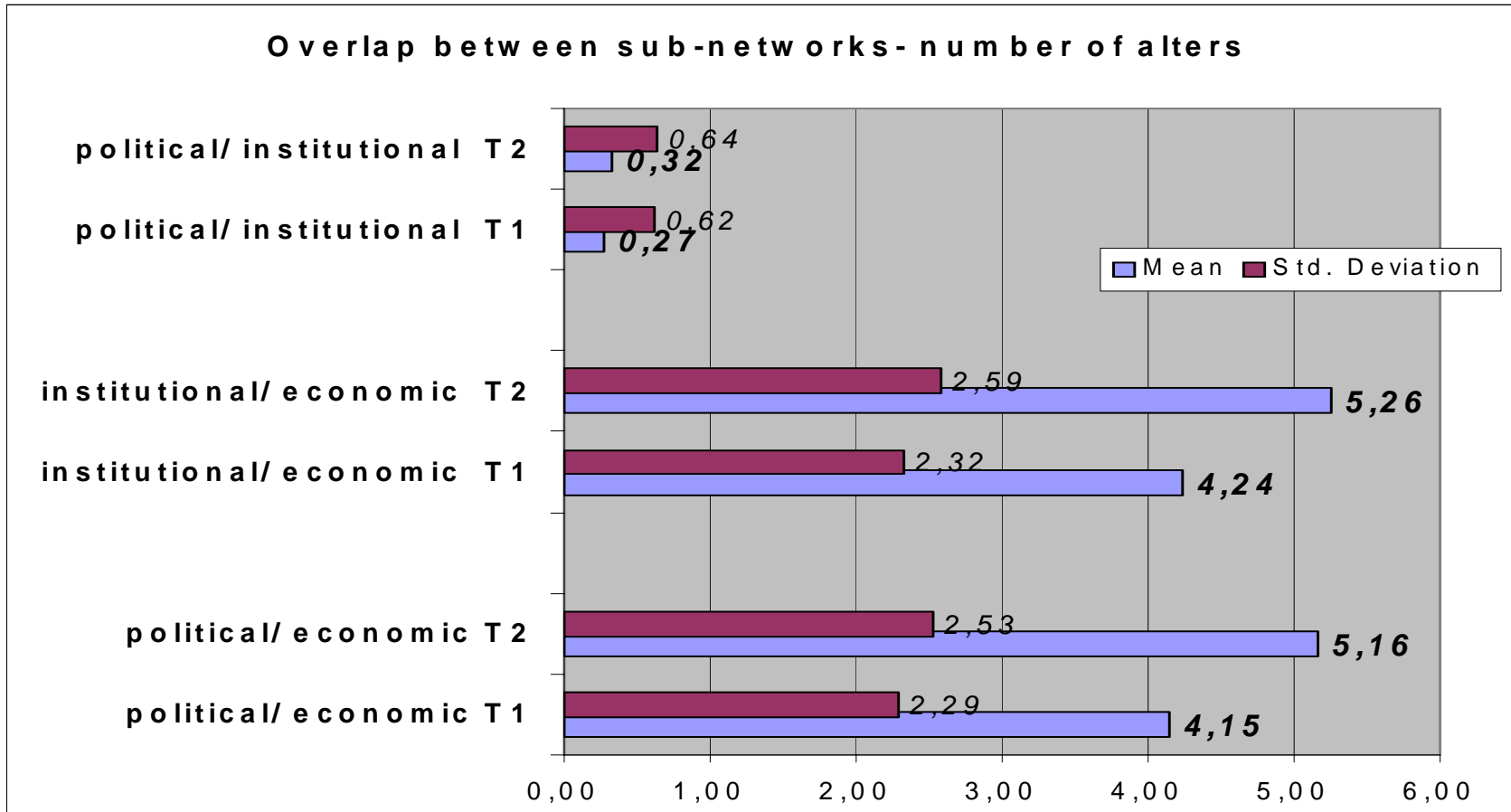
# Size of networks through time



# Change in time: number of Alters



# Change in time: overlap between sub-networks



## 2nd study - An application of the ego-centered approach to SC of managers.

Ego networks Paper of manager in Florence and Tuscany.

- Sampling based on dimensions and relevance of company (private and privatizing)
- personal information about their career patterns
- Paper and pencil interviews (→ test of interviewee effect)

<i>Total interviews</i>	123
<i>Organizations involved in the study</i>	
-Public enterprises and public sector	67
-private enterprises	25
-associations and collective organizations	26
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## Network characteristics of the managers' sample

The sub networks analyzed where three related to specific dimensions of SC (instrumental/work network, information network and resource/support network).

	Mean	Standard Dev.
<i>Size</i>		
-Without overlap of citations	5,23	2,12
-With overlap	10,74	2,10
<i>Overlap citations- contact persons</i>	5,51	2
<i>Density</i>	0,98	0,03
<i>Differentiation between the (three) networks</i>		
-Index of completeness	0,72*	0,15
-Index of differentiation	0,35*	0,18
*= min 0, max 1.		

## Main relations between social capital and career.

The size of the network (a proxy of the disposable/ accessible social capital) increases with years of experience. This relation is **not linear**: when the experience is too much - with no occupational mobility - there is a tendency that the size of the network becomes a 'constant'.

So without change in either work position/ work environment the content of social capital cannot vary through time and becomes 'unproductive'.

Size of network and years of work experience			
Years	<i>Mean</i>	<i>N</i>	<i>Std. Deviation</i>
-Over ten years of experience	5,13	24	2,050
-From 5 to 10 years	5,79	38	2,133
-Less than 5 years	4,92	61	2,108
<i>Central tendency</i>	5,23	123	2,123

## Other findings – networks and subjects

<i>Characteristics of the networks</i>	<i>Characteristics of the subjects</i>
Strong ties	Working class or low bourgeois parents, public servants, political chairs, Affiliation to professional associations, Work experience.
Weak ties	Bourgeois parents, private sector employee, Affiliation to non-professional associations
Homogeneity	Men, Public servant, Affiliation to non-professional associations
Heterogeneity	Women, private sector employee, political chairs, Affiliation to professional associations
Closure of personal network	Men, positions in directors' board, private sector employee, consultancy, work experience.
Openness of personal networks	Women, Public servant, occupational mobility, Working class or low bourgeois parents.
Size of network	Men (+), occupational mobility (+), work experience (+), Working class or low bourgeois parents (+).

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## Final observations on the two studies

- **Research design and methodological issues**
  - Design of the studies proved effective (less evidence than expected of interviewer effect in data collection);
  - Use of automatic collection devices (CAPI) helps in collection, storing and processing of data (more data and more reliable 2nd order relations) but may also present technical problems;
  - Choice between subject based boundaries (entrepreneurs) and set boundaries (mangers) have less effect on the network measures than expected (cognitive pattern).
- **In general**
  - Opportunities to improve structural measures and indexes for ego networks (e.g. completeness, differentiation of content);
  - Interesting developments in using measures for simulation of social interactions. → economic and social behavior.