

Comments on the use of network structures to analyse commercial companies' evolution and their impact on economic behaviour

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Abstract

Network analysis studies the development of the social structure of relationships around a group or an institutional body, and how it affects beliefs and behaviours. Causal constraints require a special and deeper attention to the social structure. The purpose of this paper is to give a new approach to the idea that this reality should be primarily conceived and investigated from the perspective of the properties of relations between and within units, instead of the properties of these units themselves. The relationship may refer to the exchange of products, labour, information and money. By mapping these relationships, network analysis can help to uncover the emergent and informal communication patterns of commercial companies that may be compared to the formal communication structures. These emergent patterns can be used to explain institutional and individuals' behaviours. Network analysis techniques focus on the communication structure of an organization that can be subdivided and handled with different approaches. Structural features that can be analysed through the use of network analysis techniques are, for example, the (formal and informal) communication patterns in an organization or the identification of specific groups within an organization. Special attention may be given to specific aspects of communication patterns.

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1. Social networks versus commercial networks

Researches on social networks refer to a multitude of linkages and relations between people. Important steps have been taken in identifying different ways of conceptualizing and measuring networks, analysing network structure and the characteristics of relations within networks [1,2].

Social networks are believed to affect the individual and societal soundness, through a variety of mechanisms. They may influence the creation and enforcement of the behavioural norms, and channel the flow of resources such as material goods and services, labour, information or technologies. They influence the social engagement and integration of network members. A network's member can, potentially, be influenced differently, at the behavioural, psychological and physiological levels, in both positive and negative ways [3].

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The application of social network research in the field of commercial firms can be another approach in analysing risk. Many analysts have studied the characteristics of risk networks, but the theory applied in the field of commercial companies has been less highlighted so far. As an example, how could we model, via network analysis, or how a specific model of car is chosen when the independent variables are the size of family and family income? This example has of course already been studied in areas such as marketing. Well-known basic statistical techniques, such as regression analysis, have been used to test hypotheses of the kind we just mentioned.

The probability that companies take decisions to produce more or sell less of a certain good depends on the location within a network and the speed to disseminate the appropriate news about the performance of the new product.

Social networks that are not directly related to commercial risk behaviours may also play an important role in influencing the risk level of commercial companies. Social networks based on friendship, employment in a common firm or occupation, membership in a certain organization, can influence individuals' decisions and companies' risk by channelling resources, affecting behaviours, social integration and psychological well-being. Such indirect influences have been studied in economics, especially in the field of industrial organization. But there are also numerous articles in the economic theory area, which have introduced utility functions and similar mathematical objects to formalize those indirect effects (see Arrow (1953) and Tirole (1982)) [4]. The social influence and learning that occur in such networks are accomplished through a variety of mechanisms, including persuasion, modelling of behaviour, sanctioning of behaviour and the creation of normative environments. Network characteristics affect how quickly and effectively the information is transmitted, and how it is interpreted and transformed as it is communicated. They also influence the ability of network members to monitor and affect the other members' behaviour inside the society. N. Georgescu-Roegen contributed substantially to this area, especially to applied economics. He considered that the economy of industrial civilization is an entropic process implying the environment degradation that manages the big economic and societal changes, caused by pollution and lack of natural resources.

To develop the area of potential applied research in this field, attention should be paid to answer any questions regarding the intervention strategies grounded in social network theory. Thus, methods can be evaluated and even extended, by taking into account any appropriate approaches to implement network-based interventions for increasing, for instance, the commercial firms' profit. Another question is how to get the optimum by using the sampling methodologies for commercial networks or what are the potential implications for data collected via local, partial or complete network designs.

A significant body of theory and research has developed different ways of identifying and measuring networks. For instance, what are the various dimensions of their structure? How can we characterize the relations within networks?

In this paper, we try to exemplify the relations within networks, in that we refer to those relations as, for instance, exchanges of products, exchanges of labour, and exchanges of information and money. We try to use those relations to explain the development of the social structure of relations around a commercial group or an institutional body. We also briefly investigate how the relation affects beliefs and behaviours.

There is a deeper meaning to what the social and societal networks mean for the real market. Of great theoretical and practical interest is how social and societal networks influence political agency, i.e. the behaviour of both economic agents and their customers. Agency problems have been studied in economics widely. For institutional bodies, political agency mainly means how to build, organize, reproduce, or repair in the best way, structures of well-founded mutual trust [5].

Societal networks and their patterns of relationships are a fundamental fact of market behaviour, and if those networks and patterns could be formalized, then they could begin to be used in explaining, for instance, trade-marketing strategies. Furthermore, if we could formalize network-based interventions in social science, a lot can be learned about the development and effective implementation of network-based interventions. Interventions may target the reduction of risk by different structural and dynamic changes applied to networks, with influence on individuals who are positioned strategically within or between networks. Interventions may target networks at varying levels of specificity: risk networks, social networks of risk-taking individuals, or social networks within neighbourhoods or communities.

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