

Contributions to the Impact Assessment of Network Cooperation among Social Enterprises

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SUMMARY

The literature of industrial management has been focusing, although with different intensity, on the question of optimal company size since the 1960s. Whithin this framework the focus shifted since the 1980s form the examinations of, the effects of business outsourcing to increase efficiency to the organizational and economic connections of network cooperation, since the 1990s.

Network cooperation analysis is especially relevant in the case of social enterprises, which are usually smaller than the sectoral average and are characterized with lower capitalization and higher risk than the average.

This paper reviews the literature and methods, trying to find the answers to the following four questions:

- *What justifies network cooperation?*
- *Which factors enhance and which factors discourage the start up of social entrepreneurial networks?*
- *What kind of network types can be developed?*
- *How can the effect of network cooperation be measured?*

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NETWORK FORMS

Features of the spatiality of a society are basically determined by social and spatial networks (Benedek 2009; Benedek & Kurkó 2010). Different types of networks can be distinguished based on the agents that have created them. Among these, from an economics point of view, social networks, institutional networks and the typically spatial networks like networks of agglomerations are of primary importance. All types have the following typical characteristics: the structural role of the relations among network elements, the formation of characteristic nodes, the hierarchical organization of network elements and the favourable effect of networks on productivity, competitiveness and innovation (Benedek & Moldovan 2015; Benedek et al. 2016; Eriksson & Lengyel 2019).

The academic focus on the role of territorial networks highlights two processes that began in the 1980s. One of them is related to the new post-Fordist turnaround, which is characterized by the radical change of the economy of cities and regions and by the formation of a knowledge-

based economy. This phenomenon reflects the logic of spatial-economic evolution coinciding with the the second major process: the strengthening of political and economic regionalism, in the course of which new forms of cooperation emerged between the state and the local operators. Although flexible specialization as a production method that followed Fordism could provide a good explanation for the economic success of certain Italian regions (“the third Italy”) in the 1980s and 90s, this model – or at least its Italian examples – needs to be seriously corrected now. From the spatial point of view, flexible specialization is based on a certain number of specialized networks made up of small and medium-sized enterprises, contrary to the Fordist way of production with its great, vertically integrated corporations (Piore and Sabel 1984). The growth of the small and medium-sized enterprises sector, which is strongly networked, is explained by new market relations (more diverse demand or growth in demand for design-intensive and high quality products) and new technologies (Amin 2000), but its downturn after the turn of the millennium has been given less attention

and academic interest. It supposedly does not have enough capacity for the collaborative innovation that is necessary for further competitiveness (Sabel and Herriger, 2019).

The Parisian regional economic school (Georges Benko, Danièle Leborgne, Alain Lipietz) has elaborated a typology of networks and regions to assess local and regional partnerships. More precisely, the former two authors have defined spatial networks based on two criteria (Leborgne & Lipietz, 1988; Benko & Lipietz, 1998; Krätke 2001):

- 1) Organizational forms of production:
 - a. weak decentralization, i.e. strong centralization, characterized by the Fordist model, but also found in post-Fordism, that makes it possible to build an entrepreneurial network dominated by a leading company;
 - b. strong decentralization that makes it possible to form specialized entrepreneurial networks where coordination and cooperation relations have a determining role.
- 2) Forms of spatial organization:
 - a. decentralized (spatial) diffusion where management, administration and development are particularly distinguished in space (concentrated in urban regions) and production is relocated in peripheral regions;
 - b. concentrated or spatial agglomeration where the companies and functions with different profiles are concentrated in the same region.

Based on the above mentioned criteria and their combinations, five types of network regions can be distinguished (Krätke 2001; Benedek 2006; Benedek & Horváth, 2008):

- 1) Centralized and spatially decentralized urban-industrial regions with classical Fordist centers, with companies controlled by a parent company that is situated outside the region, with economic relations dominantly beyond the region and with all the characteristics of the Fordist production system. This type can be present in the spatial agglomeration as well, namely in the form of industrial-productive complexes in the regions where parent companies can be found.
- 2) Urban-industrial regions that are similar to the first type, organizationally weakly decentralized and spatially decentralized, with cities situated in peripheral regions dominated by companies producing raw materials and materials therefore connected to large enterprises beyond the region. Thus these regions are dependent on exports to the large companies situated beyond the region. At the same time, regions that are characterized by production based on cheap labour force and lower levels of qualifications fall into this category as well.
- 3) Weakly decentralized and spatially centralized urban-industrial regions, regions where development poles or production complexes can be found and where both

large companies and service companies are present. They are strongly integrated to the regional structure and a high level of coherence is observed between the economic development model and the institutional framework.

- 4) Moderately decentralized but spatially centralized urban-industrial regions that include specialized interconnected networks of small and medium-sized enterprises. The best-known examples are Silicon Valley and Orange Country in Southern California, where companies have selected the strategy of vertical disintegration due to market and demand changes. The strong spatial agglomeration trends of the companies are associated with strong polarization.
- 5) Strongly decentralized but spatially centralized urban-industrial regions that include a large number of cities with specialized industrial companies that are interconnected with each other through market relations and are closely related to a regional social and political environment. From the regional aspect, the economic, political and social sectors form an increasingly integrated cooperation network. Examples are metropolitan regions specialized in tertiary activities and management functions. In Central and Eastern Europe, it – practically without any exceptions - refers to capital regions as a result of the spatially uneven and polarized development of the last two decades (Benedek & Veress 2013; Benedek & Kocziszky 2015; Bodocan et al. 2018; Kocziszky et al. 2018).

A further possibility of spatial and institutional networks has been elaborated by the Paris-based European Research Group into Innovative Milieus (GREMI) (Aydalot, Camagni, Maillat, Crevoisier, etc.). The concept of innovative milieus elaborated by GREMI is also built on the importance of the spatial embeddedness of social and institutional networks. More precisely, GREMI emphasizes the central role of production networks, social capital and regional coordination and integration mechanisms in the development processes (Benedek 2006). Two integration types can be distinguished (Bathelt & Glücker 2000): social integration refers to the quality of economic relations between two actors, and structural integration expresses the quality of economic relations among more than two actors. More precisely, the development and loss of confidence are defined not only by the direct relation between the two actors, but also the structural context that is made up of all of the local and regional actors.

According to GREMI, the formation of networks among enterprises is promoted by the decreased inside capacity for new knowledge generation. Consequently the innovative activity of small and medium-sized enterprises is strongly dependent on the network of relations created with other institutions of the region, such as companies, consumers, suppliers, higher education institutions, research institutions, regional development institutions, chambers of commerce or technology-transfer agencies

(Haasink 2001). According to Camagni (2018), enterprises (especially small enterprises) struggle with the problem of uncertainty and partial information and they tend to develop several new routines and functions related to control, selection, codification, search and monitoring. In this context, the local environment acts as the operator between the market and the institutions and it has the role to decrease uncertainty and risk by supporting interdependence among local enterprises (Camagni 2018).

NETWORK OF SOCIAL ENTERPRISES

In the literature about business economics, the question of economics of scale has been brought out along with the cost calculation methods. Fixed and variable expenses define the point where revenue covers the amount of total cost (break-even point). On the one hand, this point is gradually increasing dependent on the fixed costs. On the other, the breakeven point changes also depending on the type of the revenue function. It raises the question of optimal size and of which organizational interventions (structural, etc.) can be used to achieve it. The bulk of empirical studies have verified that the probability of survival of micro and small enterprises is smaller than that of larger enterprises (Eichhorn & Merk 2016).

Most of the social enterprises that are relevant to our topic (the aim of that are primarily employment, integration to the labor market, employment of disabled persons, rehabilitation of those suffering from dependence or improvement of local services) fall into the latter size category (Kocziszky et al. 2018). They usually have a shorter lifecycle and lower productivity than enterprises in the private sector, especially when it is taken into account that most of them are established as a result of governmental initiatives and in most of the cases, the state supports their functioning even after foundation. The sustainability of these enterprises can be improved with network cooperation.

The literature usually lists five arguments in support of the networking of enterprises (Burt 1985; Blecker 1999; Kaderali 2001):

- they can maintain their autonomy,
- they can improve their capacity utilization,
- they can decrease their costs with the help of joint supply chains,
- they can increase their revenue with the help of joint distribution chains,
- they can make their investments more economical and increase their productivity.

Networking is basically influenced by four factors (Burt 1984; PWG 2006):

- a) on-site factors (like the availability of supply and distribution markets)
- b) business economic factors (like economic sector, the rate of technology and work intensity of the profile or plant size).
- c) human factors (like risk taking ability, professional experience or interest)
- d) regulatory and cultural environment (like state support or consulting network).

IMPACT ASSESSMENT OF NETWORKS

The aim of the impact assessment of network is to review and analyze the output consequences of the intervention. Moreover, it aims at exploring and recording cause and effect relationships. According to the indication principle, this effect is ensured by the output.

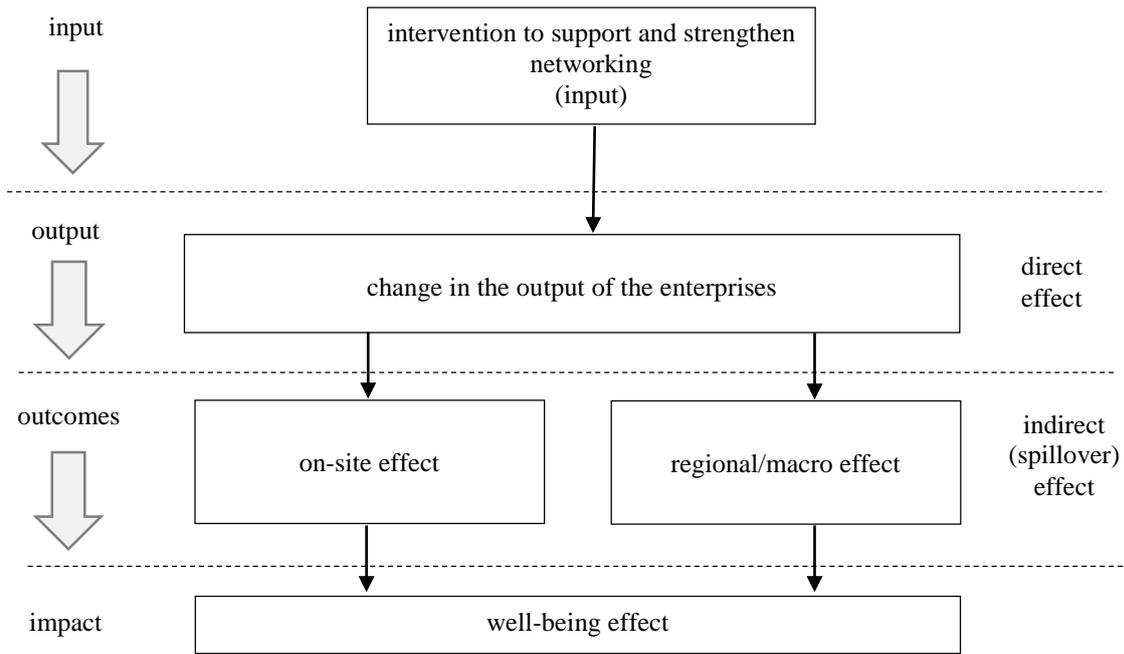
Mapping the effects is a complex task, in the course of which quantitative and qualitative element can be present. Therefore it is not appropriate to “aggregate” the output consequences in one single “measure”. These consequences can be (Burt & Minor, 1983; Atkinson & Coleman 1992; Kontos 2004):

- a) economic (e.g. social employment, income or purchasing power);
- b) social (e.g. level of qualification or average life expectancy);
- c) ecological (e.g. ecological footprint).

The effect of networking can primarily be experienced at the micro (company and local) level, but it has consequences at the mezzo and macro levels as well. Impact assessments are usually divided into two categories in the literature: descriptive and empirical:

- a) Descriptive impact assessments describe cause and effect relationships verbally and/or with the help of causal graphs. An important part of it is whether the enterprise has met its goals, to what extent it was able to activate its target group, to what extent it is accepted by the community, etc. (Serdült 2002),
- b) Empirical assessments aim at quantifying the output consequences or making them quantifiable (Faust & Wasserman, 1992).

The impact assessment of social enterprises requires a more complex analysis than the methodology applied in the case of private enterprises (like ROI or ROA) (and sometimes instead of it) (Figure 1).



Source: own compilation

Figure 1. The logic of impact assessment of networks

Table 1
possible effects of network cooperation

input	output	outcomes	impact
<ul style="list-style-type: none"> ➤ increase in orders ➤ profile clearance ➤ decrease in specific supply costs ➤ employment extension 	<ul style="list-style-type: none"> ➤ revenue increase ➤ decrease in specific cost ➤ quality improvement ➤ fall in added value 	<ul style="list-style-type: none"> ➤ social/labor market integration ➤ employment extension on-site/in the region ➤ improvement of individual income conditions ➤ improvement of mental health 	<ul style="list-style-type: none"> ➤ decrease in social costs ➤ improvement in living standard

Source: own compilation

The input → output → outcomes → impact approach makes it possible to record direct and indirect (spillover) effects, regardless of whether the analysis is about a single element of the network or the whole network (Table 1).

Beyond revealing the relations among the members of the network (0, 1), classical matrix mathematics can also be used for impact assessment, assuming that the on-site or regional multiplier (the effect of unit output outcomes) is known. Given that the output of a given enterprise can be described as a vector (y) and the impact multiplier of the network members can be described as a matrix (A), we write:

$$h = yA = [\sum_{i=1}^m y_i a_{i1}, \sum_{i=1}^m y_i a_{i2}, \dots, \sum_{i=1}^m y_i a_{im}] = \sum_{i=1}^m y_i [a_{i1}, a_{i2}, \dots, a_{im}],$$

where h is the benefit vector of the given network member; i is the number of the network member; j is the examined effect (j = 1, ..., m) and a_{ij} is the effect multiplier of the

given enterprise (the effect generated by unit output change).

The effect multiplier can refer either to the direct or to the indirect benefit elements. Direct and indirect benefit elements can be expressed in monetary terms. There are benefit elements that do not have a market value (like the improvement of mental health). In cases like this, shadow prices can be used as a basis for recording.

SOME CONCLUDING REMARKS

Macroeconomic data published regularly by the statistical office provide an overall picture about the economic and social processes of a country. The aggregating effect of this information, however, hides the specific characteristics of economic operators

(enterprises). This is especially true for social enterprises, in spite of the fact that social innovations and the enterprises that implement them (even if their economic weight can hardly be recognized within a given economy) play an important social role. That is why their economic sustainability is an important question.

According to Hungarian experiences, social enterprises have a shorter life cycle than private sectors enterprises because of their low capital resources and limited markets.

Their networking could improve this. However, networking among social enterprises is only short-lived and hardly ever happens.

Networking and organization into clusters could be promoted by the formation of a professional consulting network and the record of the positive effects of network cooperation.

The simple method described in our paper provides help for this.

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1 Social network analysis is a central and well-developed area of study in sociology, with societies, journals, conferences and decades of research devoted to it. With occasional overlap, a literature on graph theory has matured in mathematics over the same period. While the literature on networks has been thriving in sociology for over a half-century, it has emerged in economics primarily over the last ten to fifteen years.