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Piotr Romaniuk
Assistant Professor
Medical University of Silesia
Poland

Tomasz Holecki
Assistant Professor
Medical University of Silesia
Poland

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Athens Institute for Education and Research
8 Valaoritou Street, Kolonaki, 10671 Athens, Greece
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Piotr Romaniuk
Assistant Professor
Medical University of Silesia
Poland

Tomasz Holecki
Assistant Professor
Medical University of Silesia
Poland

Abstract

In this paper we describe results of a study conducted in Poland, which was aimed at recognizing how clusters are being perceived by providers of health services. The most important findings are that the current clustering potential is low, which is being determined both by the lack of knowledge and lack of will among potential partners to enter cooperation, as well as by the unfavourable legal environment, as it is perceived by the service providers. At the same time health care stakeholders are aware of possible benefits, which might be obtained from clustering, mainly in the sphere of service provision and higher health system efficiency, both in economic and social dimension. Providers perceive the benefits as relevant for both the local communities, and for members of clusters. Based on our findings we recommend to create a policy programme to support clusters, consisting of legal and tax preferences to promote cluster initiatives, as well as support for leaders of clustering to overcome a fundamental barrier to the development of cluster initiatives, which is lack of vital leadership and centers of developing new organisational formulas in healthcare.

Key words: health care provision, health care management, clustering, Poland

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Introduction

Cluster is an organisational form of business partnership, that attracts growing interest and attention among management theorists, as well as practitioners of entrepreneurship and policy makers. M.E. Porter in the classic definition describes clusters as „a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities”[1]. Bergman and Feser in turn, define cluster as „a group of business enterprises and non-business organizations for whom membership within the group is an important element of each member firm's individual competitiveness”. Finally, the OECD defines cluster as a "geographic concentration of similar or complementary businesses, which dispose with an active channels to provide transactions and communication, and use a specialized infrastructure, markets, and services”[2]. If so defined, cluster becomes a complex of ties binding members together in different dimensions of their activities[3].

The concept of cluster is quite broad. Being built on traditional theories of location and agglomeration, it interferes into, among others, the concepts of industrial districts, centers of growth, production systems, regional innovation systems, or the learning and creative regions[4]. Although the networking method has been known for years, cluster theory made a critical change into it, having identified, as the above-cited M.E. Poter points, clusters as a method of increasing the competitiveness of enterprises and regions at the same time[5].

Clusters are a phenomenon appearing mainly through the the bottom-up initiatives taken provided by the industrial entities, and they are usually formed as a result of searching for competitive advantage over the environment. They can, however, be created by clustering-oriented national policies, in such cases being included in the catalogue of public tasks[6]. Mainly for this reason clusters

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[1]Porter, M.E. 2000. Location, Competition, and Economic Development: Local Clusters in a Global Economy. *Economic Development Quarterly* 14, 15-34.

[2]OECD. 2001. *Innovative Clusters, Drivers of National Innovation System.* OECD Proceeding, Paris.

[3]Bergman, E.M., Feser, E.J. 1999. *Industrial and Regional Clusters: Concepts and Comparative Applications. Web Book in Regional Science*, Regional Research Institute, West Virginia University, Morgantown, chapter 2.

[4]European Commission. 2008. *The concept of clusters and cluster policies and their role for competitiveness and innovation: Main statistical results and lessons learned.* European Commission, Brussels, p. 8.

[5]Sölvell, O. 2008. *Clusters. Balancing Evolutionary and Constructive Forces.* Ivory Tower Publishers, Stockholm, 9-10.

[6]European Commission. 2006. *Putting knowledge into practice: A broad-based innovation strategy for the EU.* European Commission, Brussels.

started to grow very rapidly worldwide in a recent dozen of years, with a variety of strategies to support them prepared by governments and local authorities in different countries. They are being observed with interest for their contribution to market competitiveness, but also because of this active public support, that is being granted to cluster initiatives.

In Europe the national policies are additionally enmeshed in European development programmes, where the concept of clustering is involved in the catalogue of priorities listed in the strategic document "Europe 2020" as an important element of the EU economic policy. Among others issues, the document includes also the aim to develop smart, sustainable economies, based on knowledge and innovation, which should come into life with the support for environment-friendly activities, prevention of social inclusion, ensurance of social and territorial cohesion, and also by the reduction of the cost of doing business in Europe, promotion of clusters and improvement of the affordable access to funding. For Europe to be competitive within an intercontinental environment, and to ensure social security at least at the current level, there is a new model of business needed to be generated. Clusters are probably one of the possible solutions, fitting into so described EU policy[1].

Similarly the Communicate of the European Commission of 2008 mentioned to create effective conditions for supporting the development of cluster initiatives in Europe[2], underlining that there is still no unified policy model on clusters, and there are significant differences in the detailed arrangements within Member States. Currently, a dominating cluster policy in the EU, is the one based on the “triple helix” model, which assumes the interaction between entrepreneurs, as well as between entrepreneurs and R&D sector representatives, accompanied by the public authorities[3]. This is also the case of Poland, where this study was conducted.

While clustering became a popular trend among classic business enterprises, it looks slightly different in health care, mainly because of the different way the health sector is perceived, due to its socially-oriented activity, but also because of a strong engagement of the public authorities in the

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[1]See: European Commission. 2005. *More Research and Innovation – Investing for Growth and Emplouyemnt: A Common Aproach.* European Commission, Brussels; European Commission 2006. *Implementing the Community Lisbon Programme: Fostering Entrepreneurial mindsets through education and learning.* European Commission, Brussels; and European Commission. 2008. *The European Cluster Memorandum. Promoting European Innovation through Clusters: An Agenda for Policy Action.* Centre for Strategy and Competitiveness, Stockholm School of Economics, Europe INNOVA Initiative of the European Commission, Stockholm.

[2]European Union. 2011. *EU Communicate* EUROPA 2020. A strategy for smart, sustainable and inclusive growth, European Union, Brussels.

[3]European Commission. 2002. *Industrial Policy in an Enlarged Europe.* European Commission, Brussels. See also: Etzkowitz, H., Leydesdorff, L. 1995. The Triple Helix – University – Industry – Government Relations: A Laboratory for Knowledge Based Economic Development. *EASST Review* 14, 14-19.

organisational stimulation and financial flows in health care system, as well as widespread expectations that it will act based on a non-for-profit rule. Health sector is being often recognized as escaping the organisational formulas that are applicable on the ground of typical business market. Nonetheless also in this sector clusters are starting to develop rapidly, where only in Poland more than 20 such partnerships has been established in recent few years.

Both the growing popularity of clustering, and the specifics of the market of health services, raise a question regarding the way clusters are perceived by the health market stakeholders. There is an interesting issue referring to the adequacy of this form for health sector, but also the one addressing possible results the clustering may bring for different stakeholders, having interest involved in the national health system. This constitutes a basic premise for conducting the presented study. The aim of our paper therefore is to present result of the study in terms of the way clusters are perceived by providers of health services in Poland.

This study is a part of a wider research project, which results are being disseminated in an extensive sort of papers and conference presentations. The project has been financed by the Polish National Science Centre based on the decision No. DEC-2011/03/B/HS4/04181.

Methods

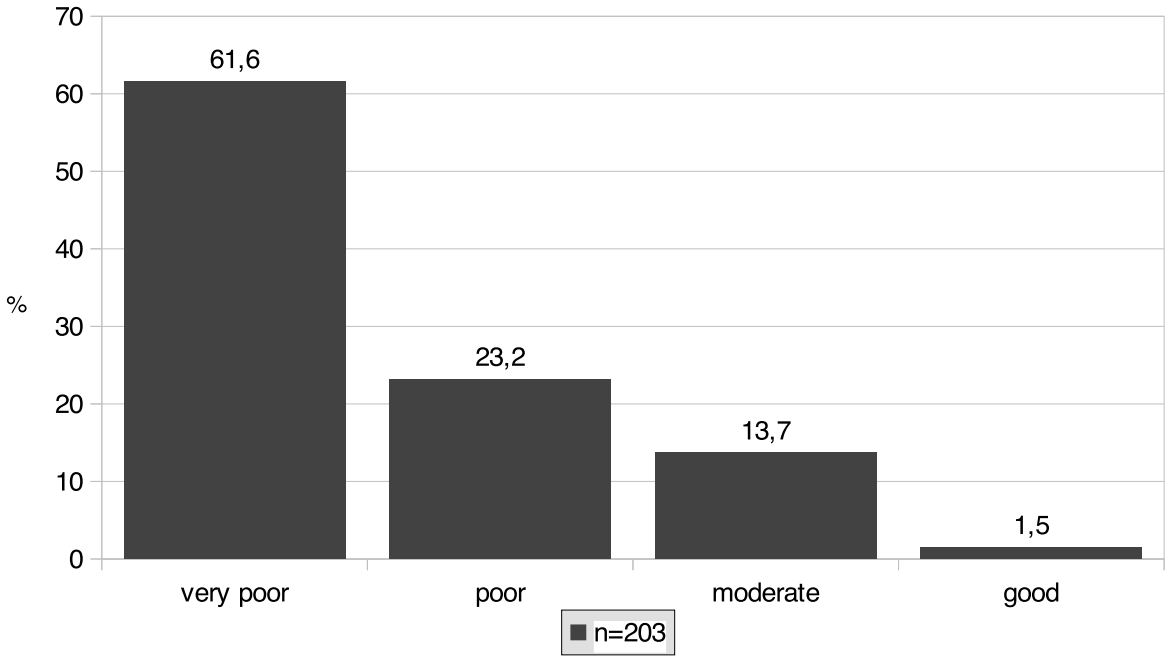
We used the computer-assisted web interview (CAWI) to collect data for this study, with an original questionnaire addressed to health care units of different types as a basic tool for data collection. The study was based on the representative randomised sample, with a total number of 203 units being examined. Respondents has been divided into groups, based on different aspects of their characteristics, such as the scope of provided activities (ambulatory care, in-patient care, laboratory services, etc.), ownership (public vs non-public), or cluster membership (yes vs no). Respondents were asked about their perception of the potential of clustering in health care, barriers and opportunities for the process of setting cluster in Polish health system, a type and areas of influence of clustering on the health system, stakeholders to be the basic beneficiaries of clustering in health care, and finally – the types of profits clusters may bring for their beneficiaries. Data has been collected between September and December 2013. For the statistical analysis we have used chi^2 test.

Results

Potential of Clustering in Health Care and Legal Regulations

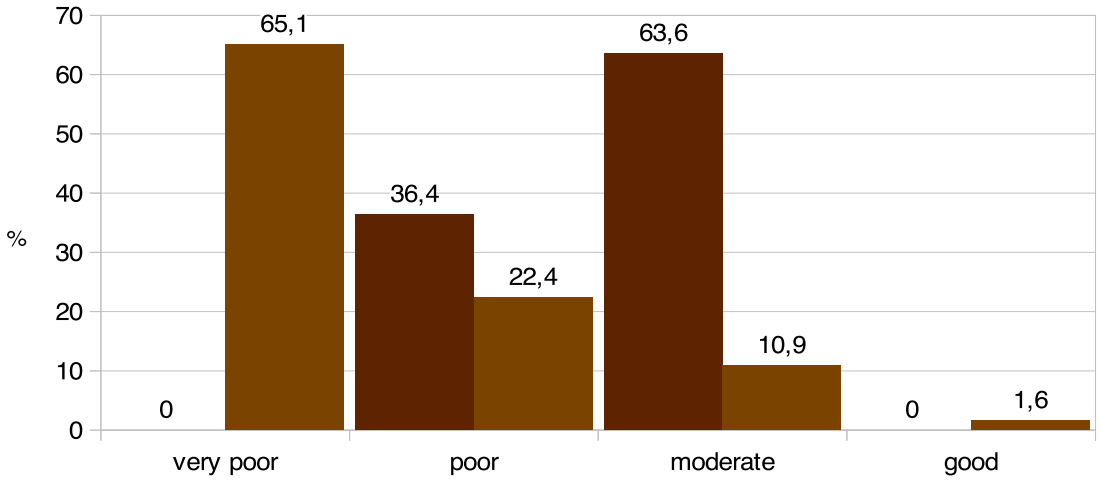
The vast majority of units assess the law as unfriendly and hostile, or at least – not supportive, to clusters in health care. Both in terms of the form of activity and form of ownership, there was no difference regarding this point. Although the answers were differing in details, a dominating point of view was the negative one. What is symptomatic however, there was a significant difference if to compare units being cluster member and the non-members, where members were much more optimistic about this matter. Although none of cluster members has assessed the law as good and favourable, at the same time none of them has assessed the regulations in a worst possible manner. Details are presented on figure 2.

Figure 1. *How does the legal regulations favour clusters in health care?*



Source: own.

Figure 2. *How does the legal regulations favour clusters in health care?*



Answers by cluster members and non-members. Source: own.

Similar is the point of view expressed by health care providers in regard to the overall potential of clustering in health care. More than 61% of all respondents has assessed it as very bad, while only 7,4% in total, assess it as good or very good. Details are presented on the figure 3.

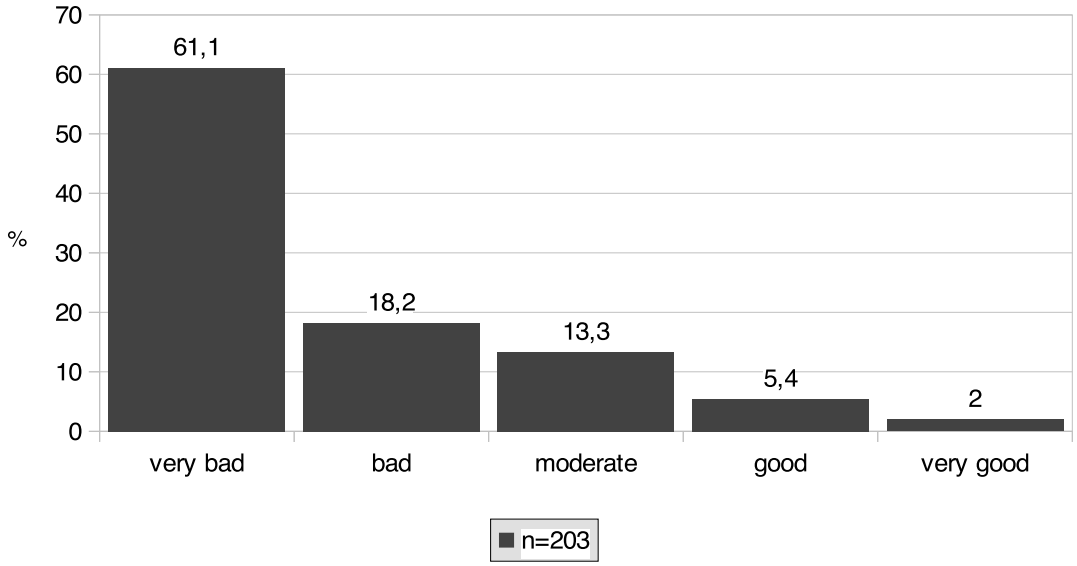


Figure 3. *Potential of clustering in health care. Source: own.*

Also in this case there was no significant difference between different types of providers. What may be surprising, if to compare units of different type of ownership, the public ones seem to be a bit less pessimistic. Still in every group the answer „very bad" is the most popular, but one should note that the percentage of this answer increases systematically as the share of non-public ownership increases. Still, however, there are no statistically significant differences, if to compare the share of answer "very bad" in groups. The significance appears only when comparing public units with the non-public ones (p=0.009277). Details are presented on figure 4.

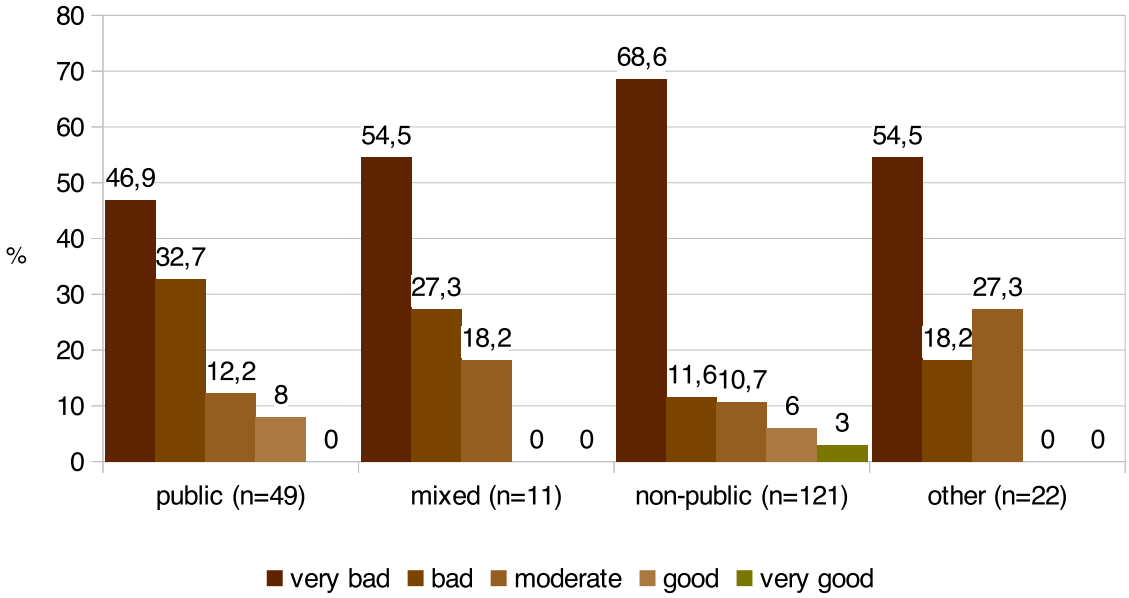
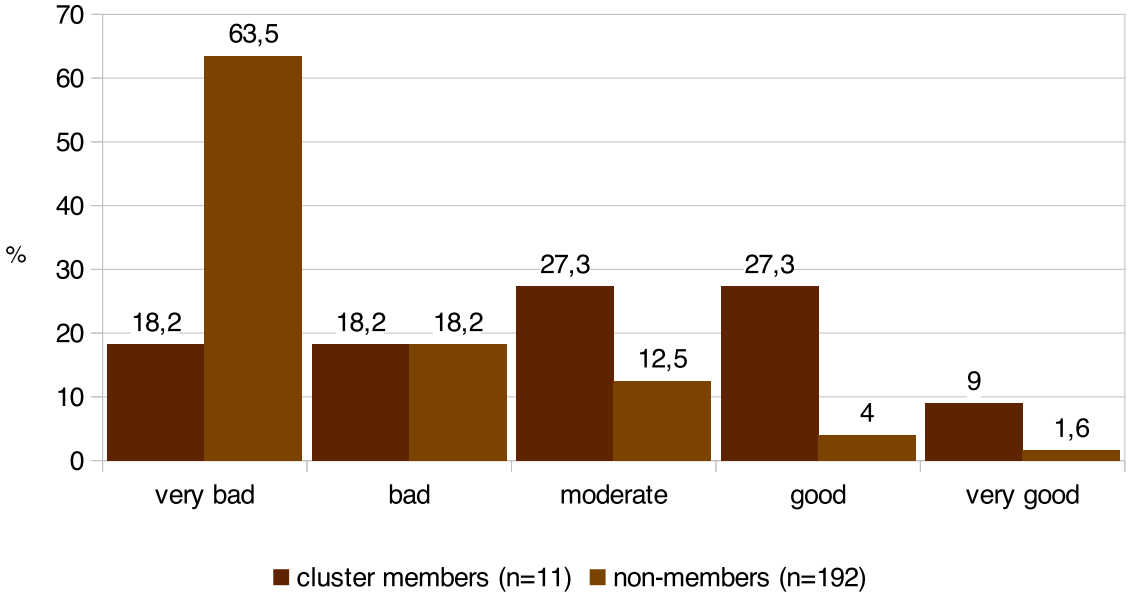


Figure 4. *Potential of clustering in health care: ownership. Source: own.*

Similarly as in the previous case, there is a difference between units being cluster member and those, which are not. The difference on this matter is radical, in case of the answer "very bad" (p=0.002692), where members are generally much less pessimistic. Difference is significant also in case of the answer "good" (p=0.0009944), while there are no significant difference in case of „moderate" and „very good" options (p>0,05). In general, cluster members are more optimistic about the potential of clustering in healthcare, although they are not necessarily enthusiastic. As we can see, if to analyse this group individually, optimists do not outweigh over pesimists, but the percentage of answers in both gropus is equal. Details are presented on figure 5.

Figure 5. *Potential of clustering in health care: cluster members and non-*



members. Source: own.

Outcomes of Clustering: Influence on Service Provision

Respondents were asked about the expected outcomes of clustering in health care. This part of the study was separated into several dimensions, of which one was the possible influence on service provision. As the figure 6. shows, most of unit representatives are not able to take a firm position on this question, although those who do, mostly confirm there is a possible influence, with only 0,5% stating, that there is not.

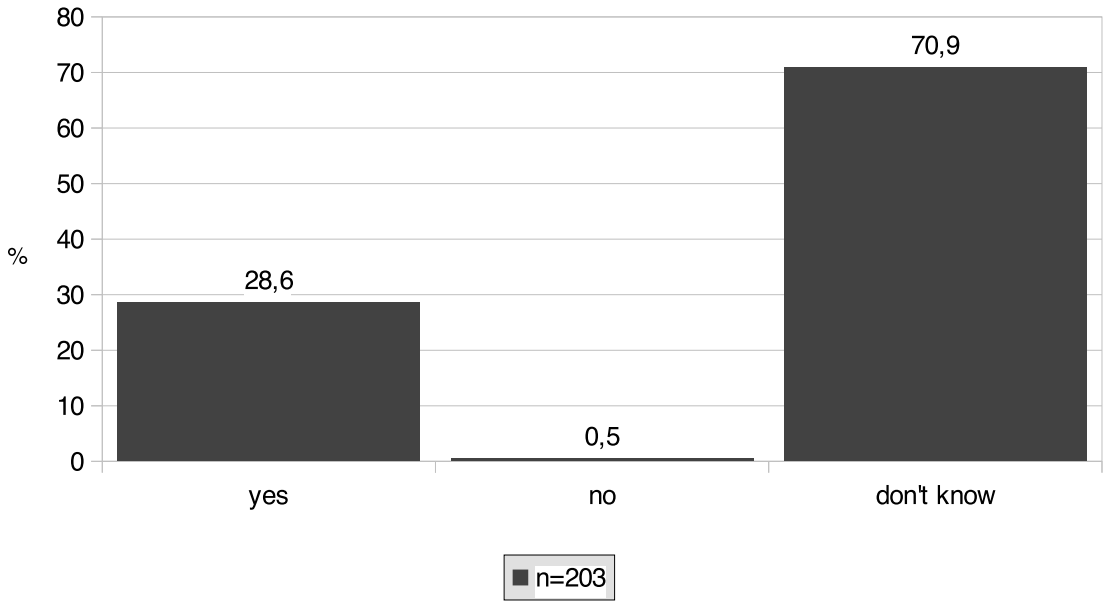
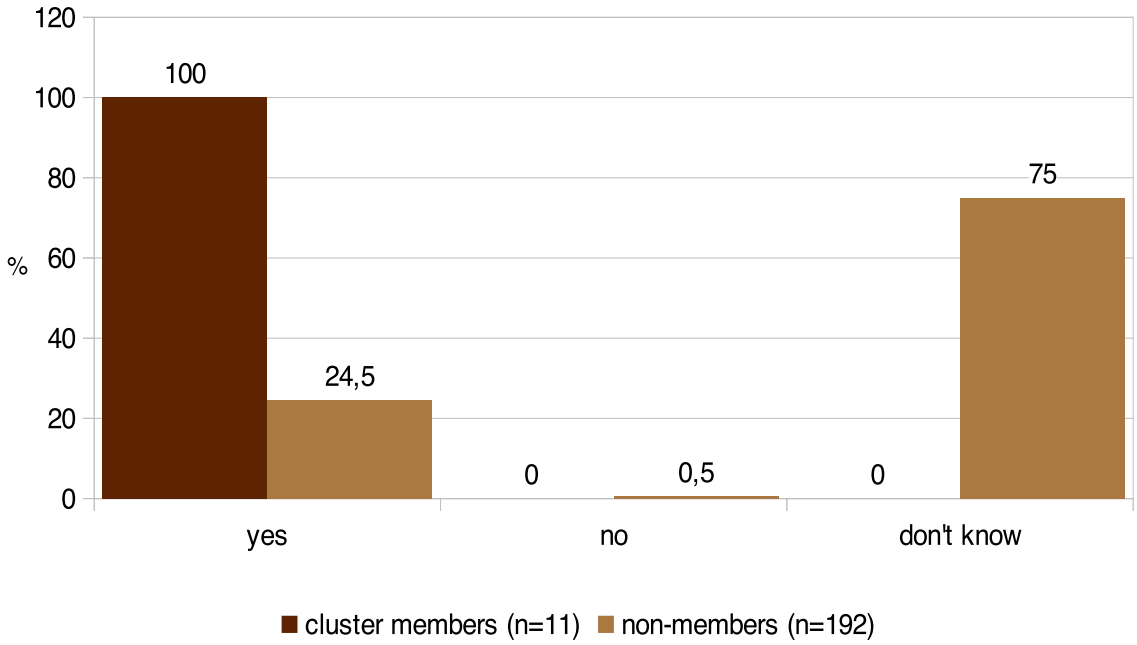


Figure 6. *Influence of clustering on health service provision. Source: own.*

There was no difference between different types of providers and units of different ownership. When comparing cluster members and non-members, we can see members being much more confident in their opinions, with no case of indecision in this group. Details are presented on figure 7.

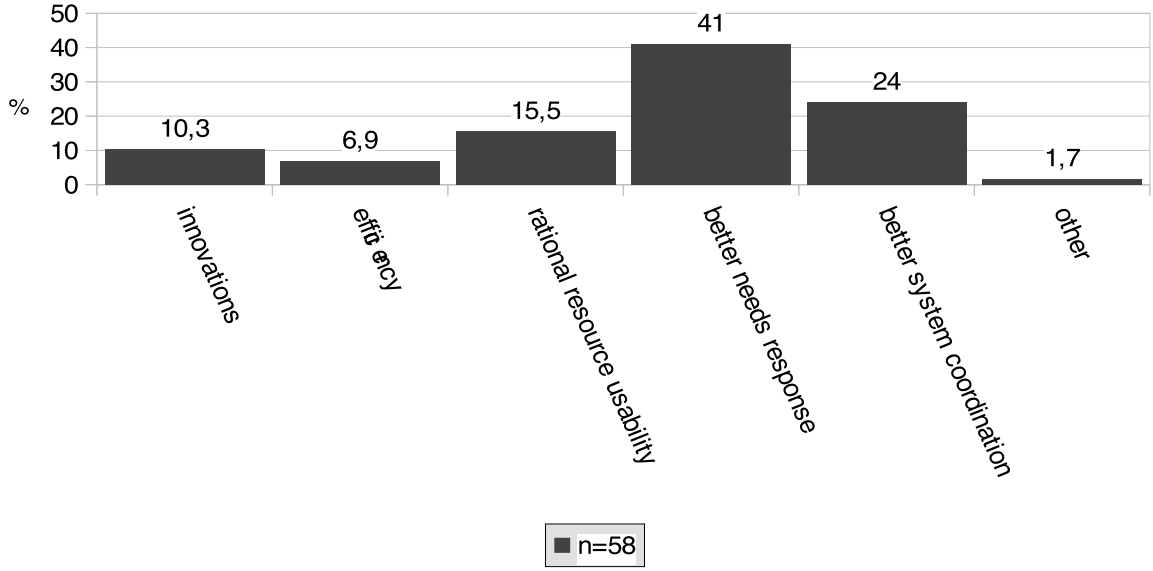
Figure 7. *Influence of clustering on health service provision: cluster members*



and non-members. Source: own.

The above question was followed with the one addressing the ways the influence may manifest itself. Respondents were underlining mainly better answer to health needs, as well as better health system coordination and resource utilization. Nonetheless, only the first option was indicated significantly more often than any of the other options. Details are on figure 8.

Figure 8. *How clusters influence service provision.*



In this case we have noticed differences between types of units. In-patient care providers were focusing mostly on health needs, while out-patient care units paid attention to system coordination as well. Out-patient care was also more frequently indicating resource utilization, while being less concentrated on financial efficiency. In case of spa service providers, health needs has not been taken into consideration, while system coordination was the most popular answer. This type of units has also paid a significant role to innovations, which, in turn, was out of any interest for in-patient care providers. Still however, any statistical analyses in this case would not give a reliable result, since the sample sizes are too small. Details are on figure 9.

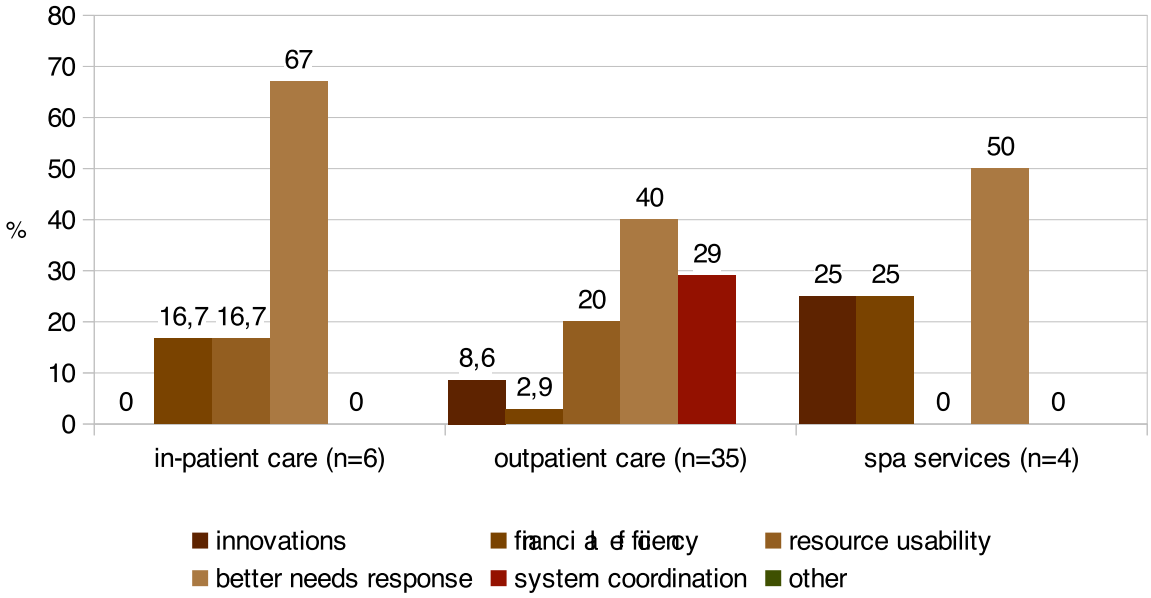


Figure 9. *How clusters influence service provision: types of unit. Source: own.*

There were no noticeable differences in this case between units of different ownership. Also in case of cluster members and non-members differences were not significant, although members were slightly more likely to see the influence on needs recognition and provision, while non-members expected financial efficiency and resource utilization as an outcome more frequently. Details are presented on figure 10.

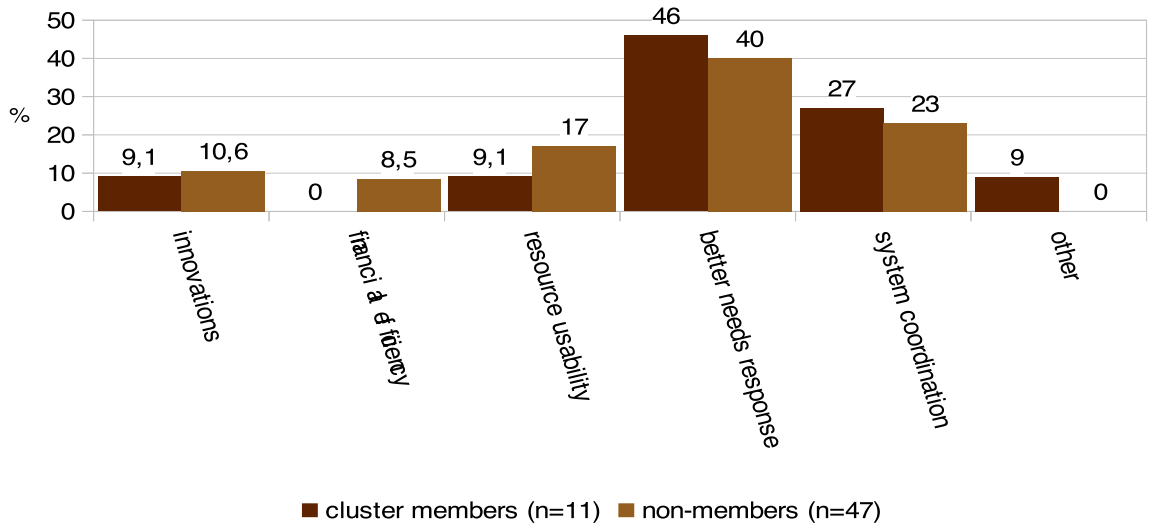
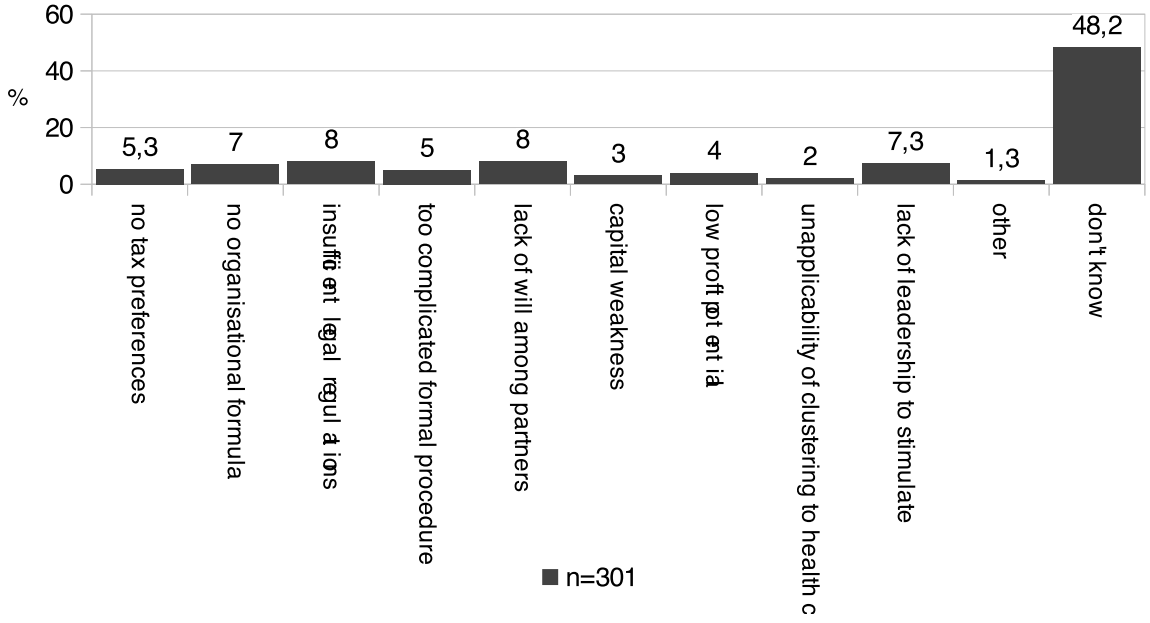


Figure 10. *How clusters influence service provision: cluster members and non-members. Source: own.*

Clustering in Health Care: Barriers and Opportunities

When asked about the basic barriers for cluster creation, respondents were not able to point any of the possible options as the most important. At the same time almost half of them were not able to indicate any of the available options, which is presented on figure 11. There were no differences between different types of units.

Figure 11. *Basic barriers of cluster creation (max 3 answers allowed). Source:*



own.

Similarly as in previous cases, also in terms of the barriers of cluster creation there was a noticeable difference between units being cluster members and those, which are not. Among cluster members there are three options that are indicated visibly more frequently. Namely, as the basic barriers those units have indicated the insufficient tax regulations, which is an external factor making most probably clustering a project of hardly perceptible profitability for partners. The remaining two factors are the internal ones, and both touch the area of cooperation. Cluster members have underlined the lack of will to enter the cooperation among the potential partners, as well as lack of leaders to

stimulate the process. We can presume the second of the three factors is at least partly a consequence of the remaining two, although the general social culture features may also play a role. Details are presented on figure 12.

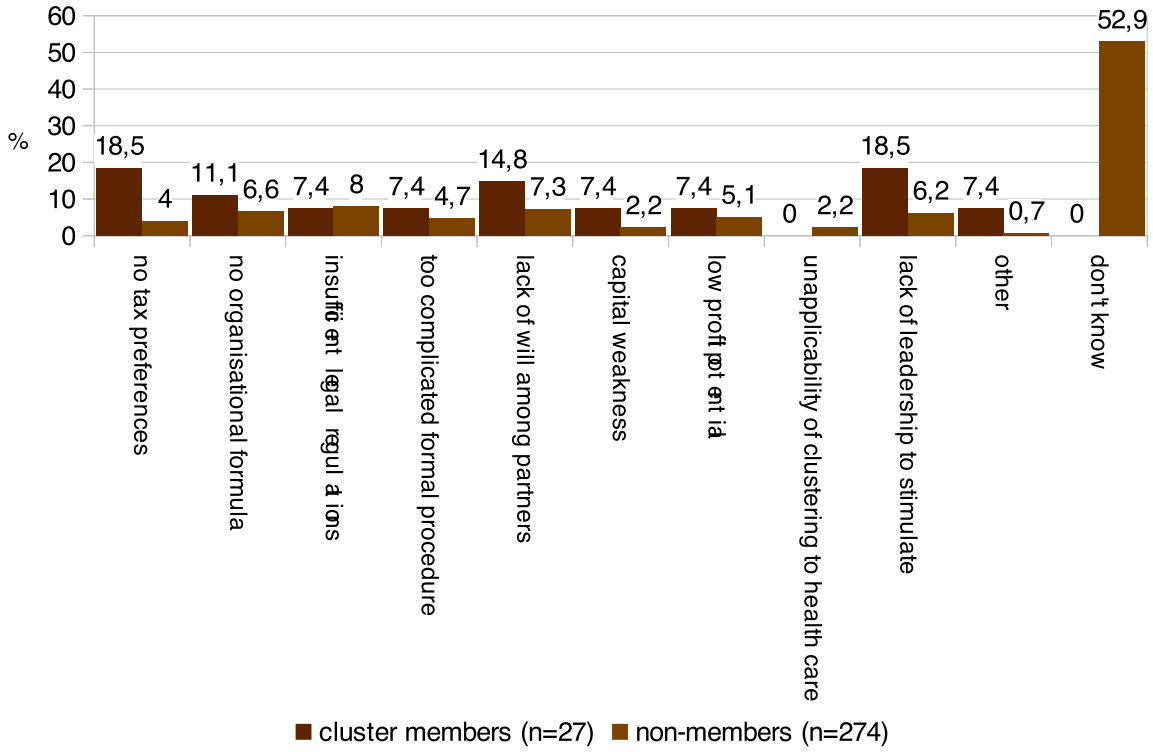
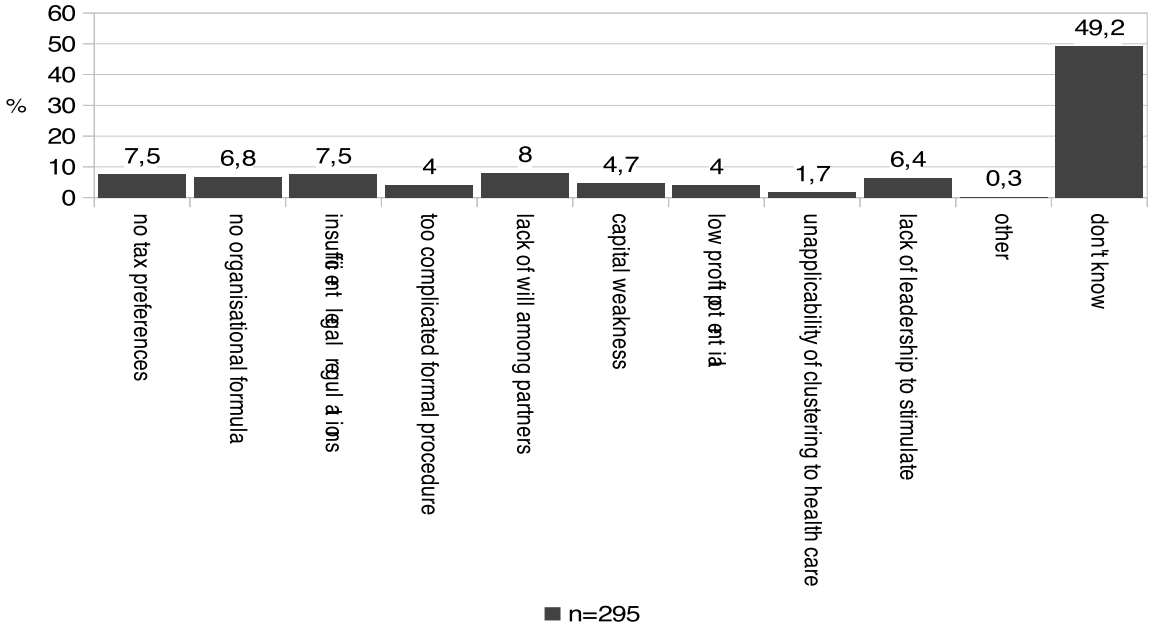


Figure 12. *Basic barriers of cluster creation (max 3 answers allowed): cluster members and non-members. Source: own.*

Similar was the situation in case of the basic barriers of cluster growth. In general there was no a single factor to be highlighted by the respondents as the most important, with no difference in case of private and public providers, or those providing different types of services. Nearly half of units have no knowledge about the barriers. Cluster members were, however, more conclusive in their opinions. Similarly as in case of cluster creation, the insufficient tax preferences were indicated as the most important barrier. Nonetheless, the second most popular answer was different than in previous

case, as the insufficient legal regulations appeared as the identified barrier. The rest of available options have attracted attention not clearly differing in their scale from the remaining ones. We can conclude therefore, that in opinion of cluster members the external factors are crucial when it comes to the impact on the functioning of already existing clusters. Figures 13. and 14. illustrate the results in this area.

Figure 13. *Basic barriers of cluster grow (max 3 answers allowed). Source:*



own.

Figure 14. *Basic barriers of cluster grow (max 3 answers allowed): cluster members and non-members. Source: own.*

There was a huge difference in perception of factors determining cluster success between cluster members and non-members. While in the second group mainly the factors of axiological nature (trust) followed by the state's support has been underlined, cluster members concentrated more on the rational calculation pushing members to give priority to the commonality of aims over internal competition. Cluster members were also more likely to see the state support as relevant, however with no statistically significant difference in this case (p=0.7173), as well as the way internal relations are configured, which should be interpreted more in a formal way, not the one being based on values. Below are the figures 15 and 16 to present details.

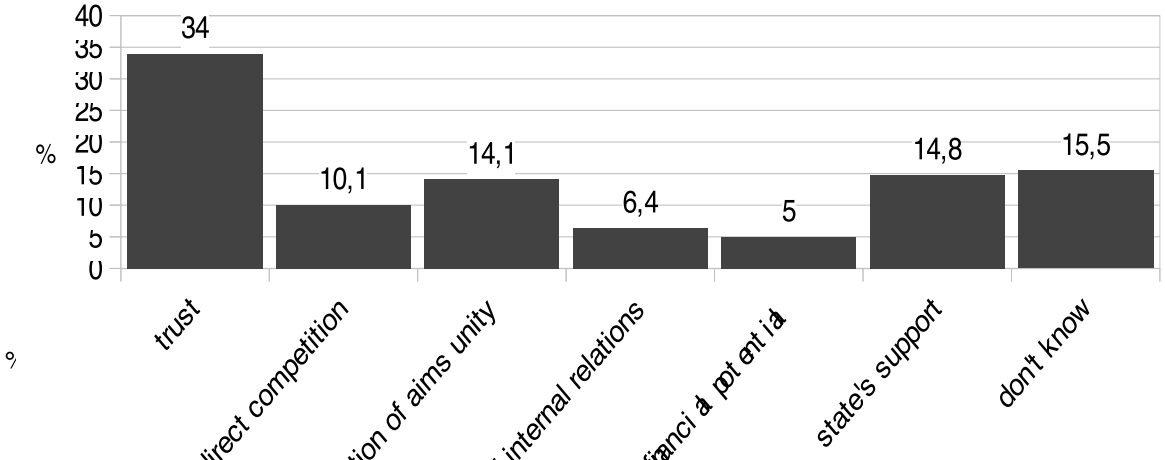
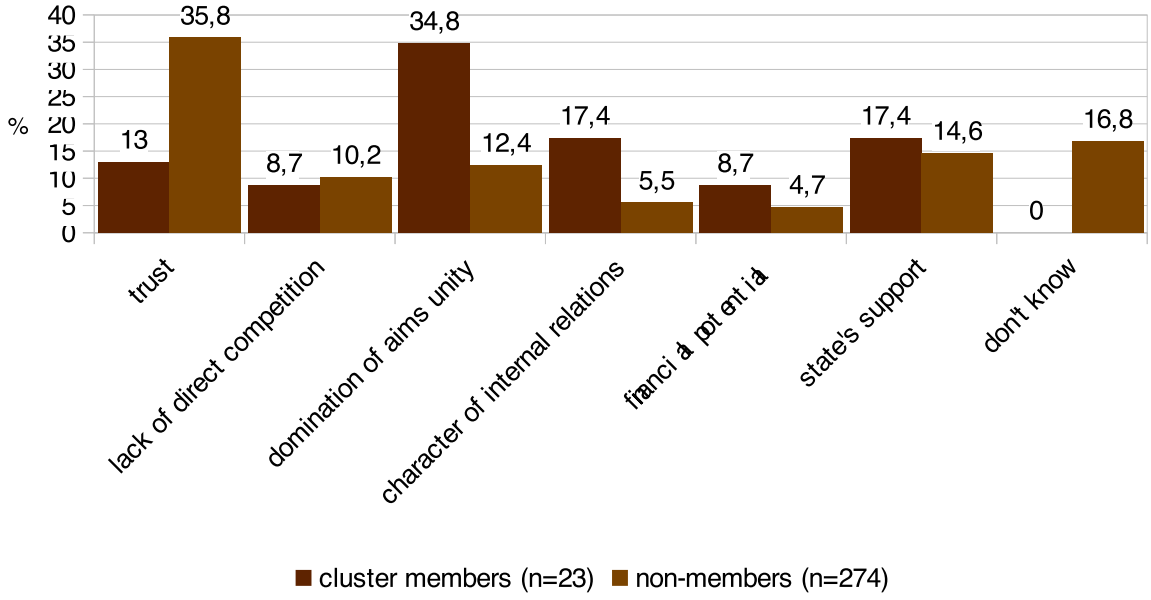


Figure 15. *Main determinants of cluster success (max 3 answers allowed). Source: own.*

Figure 16. *Main determinants of cluster success (max 3 answers allowed):*

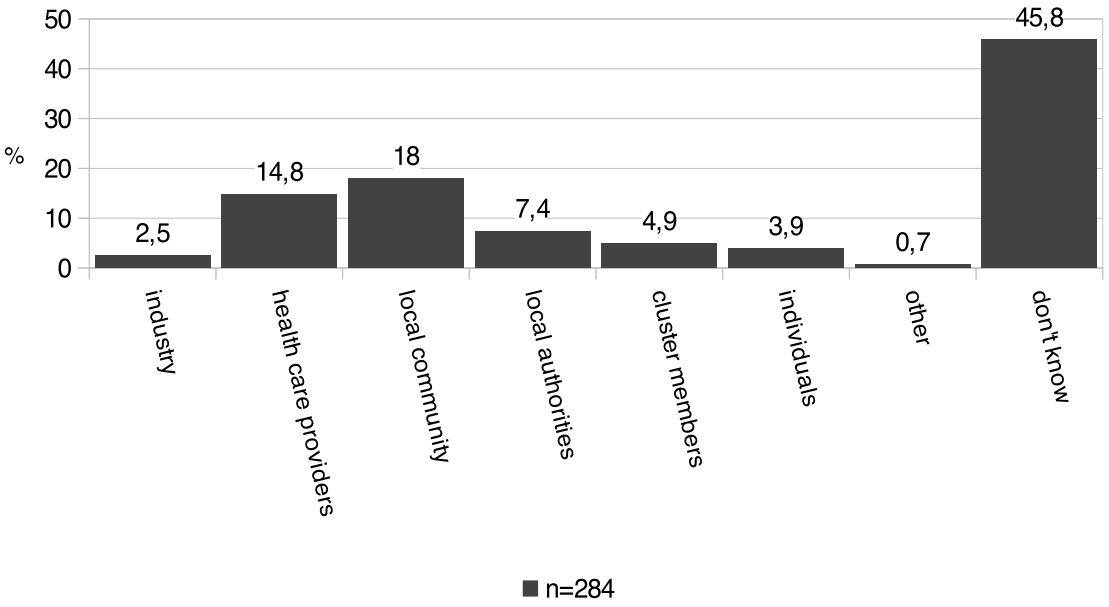


cluster members and non-members. Source: own.

Clustering in Health Care: Benefits

Quite interesting is the perception of basic cluster beneficiaries, particularly when it comes to difference in the perception between cluster members and non-members. While it the second group most of respondents cannot identify any of the entity or body to gain benefits of clustering, those who expressed opinion, perceived the local community as the basic beneficiary, and health care providers as the second group. Those answers seem to be somewhat divergent with the opinions in previous areas, showing a potentially high usability of clustering both for the social environment the cluster is acting in, as well as for the health care units themselves. Quite similar is the point of view of cluster members, who state that both those groups of bodies may benefit in a similar scale, Additionally cluster members suggest that all the members may gain profits, not only health care providers. Concentration on providers is understandable, if to keep in mind that this is the group being asked in this study. If to expand the interpretation of those responses, we can conclude that cluster members see both society, and the cluster itself to gain profits of this formula in a comparable scale. Results are presented on the figures below (fig. 17. and 18.)

Figure 17. *Who is the main beneficiary of clustering (max 3 answers allowed).*



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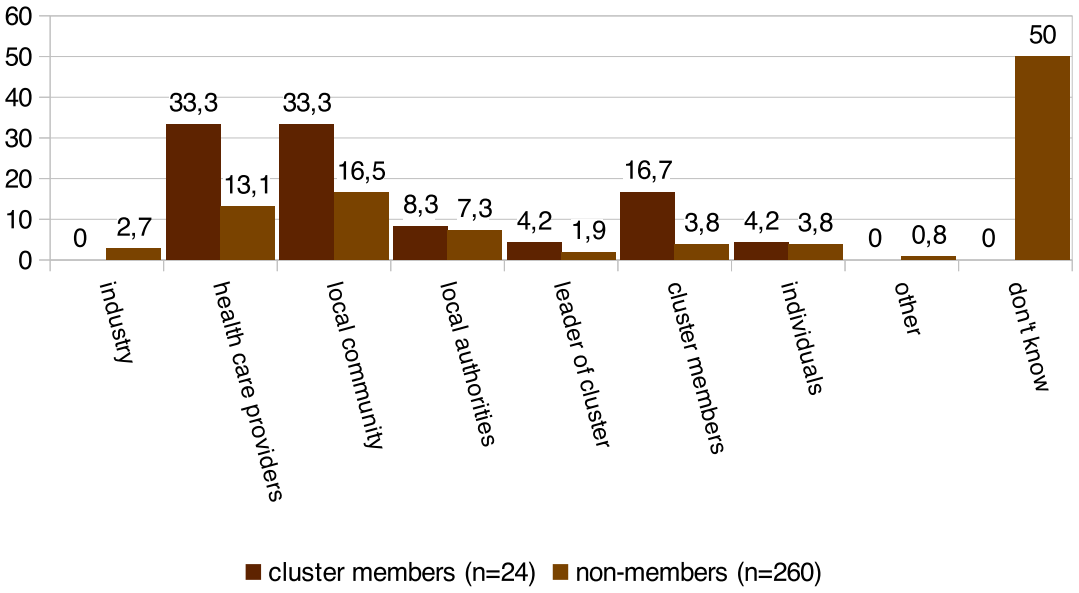
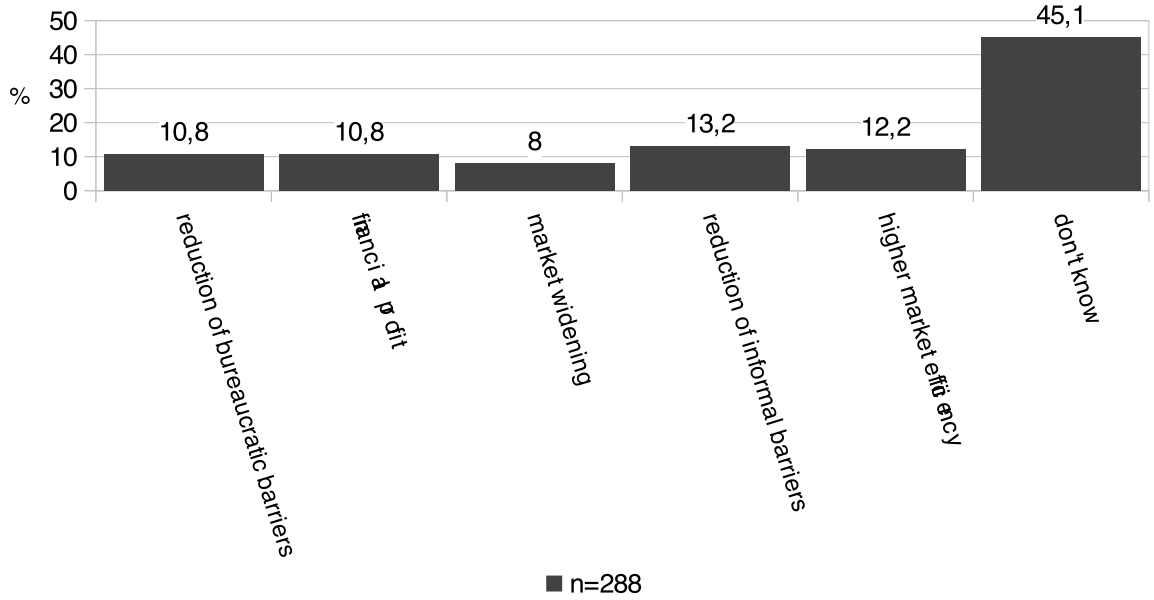


Figure 18. *Who is the main beneficiary of clustering (max 3 answers allowed): cluster members and non-members. Source: own.*

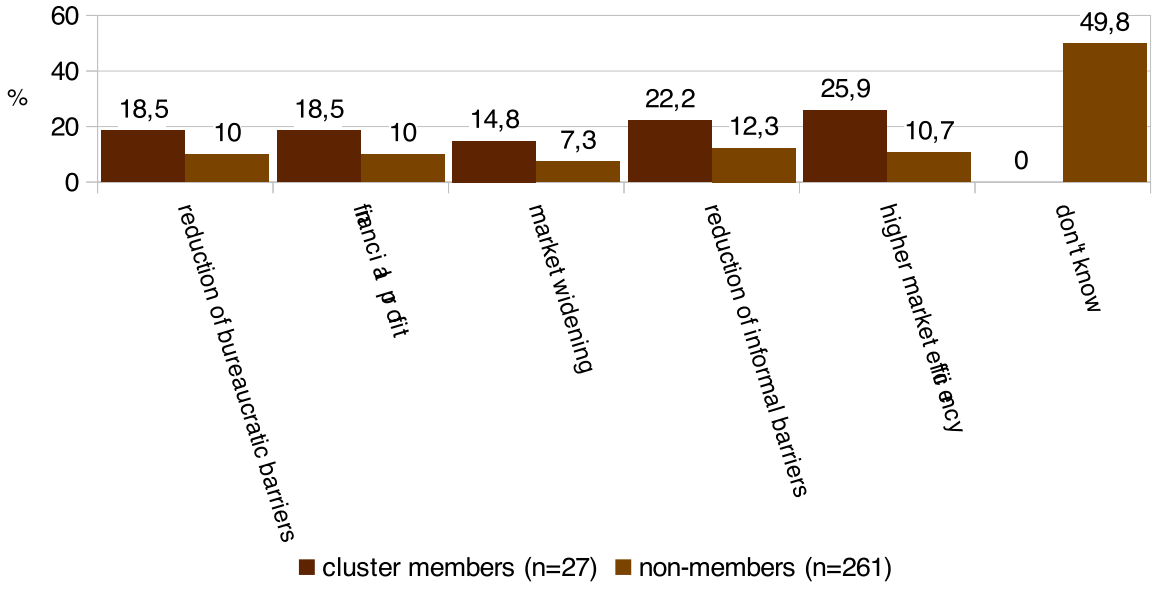
The final question respondents were asked was about the kind of profits they can obtain from the membership in partnership network. Similarly to the previous cases, most of them could not indicate even a single answer, while the rest of respondents were not oriented in their responses unambiguously. This is both the case of cluster members and non-members, which can be interpreted in two ways. First interpretation is that respondents do not have any clear vision about what clustering may bring to its members. The opposite interpretation in turn will be that there is a sustainable and wide package of profits that can affect units in different dimensions of their activity. What is noticeable however, non-members are more likely to expect non-economic profits, while cluster members concentrate rather on the financial and market dimension, while marking the market efficiency most frequently. In both cases however, the most popular answer was not appearing statistically significant more frequent than the others. Details are presented on figures 19 and 20.

Figure 19. *What kind of profits may be obtained from cluster membership (max*



3 answers allowed). Source: own.

Figure 20. *What kind of profits may be obtained from cluster membership (max 3 answers allowed): cluster members and non-members. Source: own.*



Discussion and Conclusions

The results of our study allow us to draw some key conclusions. Firstly, the current clustering potential should be assessed as low. So suggest the opinions expressed by the establishments providing health services. Low is the potential evaluated as itself, and defined by the factors that determine it, i.e. the legal environment and the economy, which are described as unfavourable. The fact that such, and not another, is the way clusters are assessed, is not necessarily a precise reflection of the real state of things, as evidenced by the perception of the sphere by the entities already being members of clusters. Their pessimism is noticeably lower, which undoubtedly should be seen as a positive sign of the lack of justification for the concerns indicated by most of respondents. The discrepancy of views however does not detract from the fact, that actual barriers limiting the possibility of clustering progress do exist, whereby, in opposition to the dominant opinion, these barriers are not entirely the external ones, that would arise of system and legal conditions. Similarly they are not caused by structural factors, like, for example, the inadequacy of the cluster model for the healthcare industry, or the lack of a clear vision of the organizational cluster formula for this sector. The actual barriers are:

- Perception of providers, whose belief in the low clustering potential in health care, even if considered as unfounded, without a doubt can be a factor that stimulates their behaviour, or rather in this case – to refrain from behaviours or actions aimed at the formation of cluster networks, or accession to such. This conclusion arises directly from the responses regarding clustering potential and legal conditions of the process. It sounds even stronger, when confirmed by the opinions expressed by members of the existing clusters, relating to real barriers to the formation and development of such initiatives. Among the key barriers, the lack of willingness of potential members, as well as the lack of a strong leader, who would stimulate this process, are quite clearly exposed.
- Lack of knowledge regarding what clusters are and what benefits may be derived of this formula. This conclusion, in turn, is supported by three observations described in the above part of the article. First, in most cases there is a noticeable and clear divergence of answers between entities not being members of a cluster and those, that already participate in such partnership networks. Second, the answers given by service providers in relation to the factors associated with cluster operations, or relating to the effects of clustering, are clearly scattered, which may suggest a certain randomness of answers. They do not reflect, at the same time, an actual vision or view on the questioned problem. Thirdly, it is impossible not to notice the overwhelming dominance of 'do not know' answer, in case of the majority of questions asked. This undeniably proves that for the entities operating within the health system, clusters are an enigmatic and unrecognised idea. It should be noted that this conclusion applies to all sectors of health system – both in terms of the ownership formulas, level of care and the nature of provided services. With the exception of a few cases, responses by providers qualified to various groups remained vague in a similar extent.

That low clustering potential stands in fairly clear opposition to the benefits that this process can bring. Respondents very unequivocally emphasize that this formula can be applied in health care, thereby affecting the provision of health services and – what is more important – positively influencing it. A positive result within this dimension can have both systemic (improved financial and organizational efficiency), and social (better health needs recognition and answer to them) reflection. Of considerable importance is the fact, that potential benefits are perceived as relevant for both the local

communities, and for members of clusters, which shows the multi-dimensionality of the clustering process, with its possible references to both the public sphere and the particularistic one. In a way therefore, indispensably the above conclusions lead to a final reflection arising of our study: the process of clustering in health care requires support and external stimulation, which should be understood in the first place as provided by the public institutions. This results from both the respondents views, in particular the current cluster members, as well as from the combination of circumstances, as described above. The group that should be interested in clustering will probably not be able to achieve the desired degree of dynamics based on their own initiative. Public involvement is justified by the nature of health care as well. While remaining in the area of social sensitivity, to a large extent it depends on public stimulation and coordination. In addition, as shown in the existing analyses[1], the formula of public-private symbiosis, organizational and financial share of responsibility, is supremely advantageous from the point of view of expected health outcomes and efficiency.

Among the recommended ways public authorities should support clustering, the following should be particularly suggested:

- Creation of a system of legal and tax preference for cluster initiatives. Even if we assume that the rules already in operation are adequate in terms of capacity, and generate benefits for clusters, such actions should be considered in terms of the promotion of cluster initiatives, that stimulate the behaviour of entities within the health system, and that increase their awareness of the existing possibilities in this regard.
- Organizational support in terms of know-how available for the particular entities that might take the role of leaders of clustering, and then transfer acquired skills and knowledge to other entities, through the created and running cluster initiatives. The deficit of leaders is one of the fundamental weak points of the health care sector, as identified in our study. It can be explained by both the lack of a culture of cooperation characterizing Polish society[2], and by the weaknesses of the healthcare sector, where a large

[1]see i.e. Osborne, S.P., ed. 2000. *Public-private partneships. Theory and practice in international perspective.* Routledge, London, New York. See also: Nikolic, I.A, Maikisch, H. 2006. *Public-Private Partnerships and Collaboration in the Health Sector. An Overview with Case Studies from Recent European Experience.* The international Bank for Reconstruction and Development, The World Bank, Washington.

[2]Letki, N., Evans G. 2005. Endogenizing Social Trust: Democratization in East-Central Europe. *British Journal of Political Science* 3(35), 515-529; Kochanowicz, J. 2004. *Trust, confidence and social capital in Poland: A historical perspective*. In *Trust and Democratic Transition in Post-Communist Europe,* Markov I. Ed. Oxford University Press, Oxford, 63-84.

proportion of organisations focus on current problems arising from the balancing on the brink of financial collapse, rather than making strategic actions for the future benefits. As these factors are dependent on State's health policy to some extent, the more reasonable it becomes to postulate above stimulus action, including those using legal and fiscal instruments.

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