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COOPERATION AND COMPETITION AMONG CENTERS FOR ECONOMIC DEVELOPMENT (CEDS)

ABSTRACT

An increasing number of Centers for Economic Development is emerging in different countries of European Union. Their main goal is to stimulate Economic Cross border Cooperation. The consequences of this raising number of CEDs are little understood: does the agglomeration stimulate cooperation, or does it lead to a competition between CEDs? We use a game simulation as a research method as it offers a successful way of performing policy research. The main finding of the 'CED game' is that with agglomeration, the willingness to cooperate decreases. Furthermore we discuss the potential advantages and disadvantages of such game simulation as a tool for policy research. This article suggests that game simulations can be an interesting tool for policy research, but since this method also has its disadvantages a combination of various research methods will contribute to better results.

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Key words: *game theory, competition, cooperation*

Introduction

An increasing number of CEDs is emerging in Europe. It has become clear that strong trends of agglomeration are present in the CED sector. The consequences of this agglomeration of CEDs are not well understood: does it simulate cooperation, or does it lead to a competition between CEDs? Several authors argue that an increased competition of funding turn local organizations into organizations that operate strategically and opportunistically to secure funding (Cooley & Ron, 2002). According to them CEDs will spend more time and effort to obtain funding, instead of promoting transnational economic cooperation. This is what we attempt to assess in this paper: does this agglomeration of CEDs promote cooperation and benefit the companies and consequently the European Union, or does it lead to opportunistic behavior?

We use a game simulation research method to answer this question with respect to the EU. We use this method as it provides a new and innovative way of doing policy research. There is little experience with surveys and questionnaires as a tool for evaluation. Yet, little experience exists with game simulations in that field. The aim of this paper is to provide an answer to the above mentioned research question, but also to assess the advantages and disadvantages of game simulation as an instrument for policy research.

In this article, we first explain what collective action theories argue with respect to cooperation between EU CEDs, in particular the relation between agglomeration and cooperation. Moreover we explain the usage of a game simulation as a research method to test these theories, and how did it perform in practice. We continue by presenting the results. The main finding of the 'CED cooperation game' is that with agglomeration, the willingness to cooperate decreases. Based on this research, we conclude by discussing the

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potential advantages and disadvantages of game simulation as a tool for policy research.

Theoretical framework

This theoretical framework is based on the basics of collective action theory and its predictions on the relation between agglomeration and cooperation. Collective action theory makes certain predictions about when cooperation is likely to occur. Olson (1965) argues that 'the larger the group, the less it will further its common interests' (pp.36; Piciotti in Clague; 1997; Ultee et al; 2003). Authors argue that suboptimalization of collective goods is larger in bigger groups as the noticeability of contributions and the individual benefits become limited. In addition, with many actors, costs to reach and enforce a contract for collective action become prohibitively high (Olson, pp. 46). With rising agglomeration the group size increases, hence decreasing the level of cooperation. Alternatively, Wade (1988) argues that another factor is co-determining outcomes in cooperation, namely: that even without selective incentives, cooperation can emerge if the collective benefits are high enough (pp.207). We assume that collective benefits are low in low-density areas of CEDs, as there are no shared learning possibilities and no shared marketing opportunities. Wade argues that in these circumstances little cooperation is taking place. We assume that with rising agglomeration collective benefits increase, as there are more possibilities to complement each other's activities, for instance when one CED focuses on infrastructure and another on education in the same community. After a certain point possibilities to cooperate decrease, since CEDs become competitors for funding and target groups. In sum, Wade's theory would suggest an initial increase in cooperation with rising agglomeration that levels off and even decreases after a certain level of agglomeration.
Olson argued that market groups differ fundamentally from non-market groups in their attitudes. The firm in an industry wants to prevent new entrants from coming into the market and wants as many as possible of those firms already in the industry to leave it. The firms in a given market are competitors. For non-market groups the opposite is true. Usually the larger the group to share the benefits and the costs with, the better. An increase in the size of the group does not bring competition to anyone, but may lead to lower costs for those already in the group. The large lobby networks of CEDs in e.g. Brussels are an example of this. The larger their network, the more influence they have when lobbying policy makers and politicians. The main difference is that in a market environment, the supply is fixed and in a non-market environment, the supply is not fixed (ibid; 37). We predict that in our case study a non-market environment changes in a market environment when the supply becomes fixed, that is when the CED market is saturated to the degree that new donors are hard to come by.

This research identifies three levels of cooperation:

1. cooperation with selective benefits for CEDs, but not necessarily for the target group;
2. cooperation with some selective benefits for CEDs and some for the target group;
3. cooperation without selective benefits for CEDs but for the target group;

The first level of cooperation refers to activities related to joint fundraising of CEDs. These activities relax the supply constraint, but do not necessarily increase the effectiveness of their work. This type of cooperation does provide selective incentives, but does not necessarily benefit the target group. Examples of these joint marketing and fundraising efforts are a joint fundraising website or a joint fundraising proposal-writing workshop. Both Olson and Wade would predict that this type of cooperation takes places in intermediate groups.
The second level of cooperation refers to activities such as joint training centers for staff and a mutual quality control system. These types of activities stimulate the quality of the

work of the individual organizations and through this increases the quality of the overall product. There are some selective benefits, but most of the benefits accrue to the common good. E.g. organizations that train individuals loose them to other organizations, and the rising quality of the organizations rises the tide for all boats, not just for the own organization. This kind of cooperation is hence the maximum kind of cooperation that Olson predicts in small intermediate groups. As agglomeration rises, and thus group size, Olson predicts that due to decreasing selective benefits, this cooperation will diminish, and finally only the cooperation with selective benefits only will persist (level 1).
The third level of cooperation (no selective benefits and collective benefits only) refers to activities such as coordination of regional and thematic priorities. These types of activities are good for the target group as overlap between the organizations is reduced and resources are more equitably spread. Brett (1999) argues that this cooperation is difficult to obtain as 'they are independent agencies, which defend their autonomy jealously and compete for funds and contracts. This makes coordinated action difficult, producing duplicated services in some areas and nothing in others. The social network that develops within the CED community does help, but the results are likely to be partial and imperfect, since they depend on personal contacts and preferences and are constrained by inter-agency rivalries.' Wade argues that cooperation can occur in such cases, if the collective benefits are high enough. Olson argues that this kind of cooperation will not take place as there CEDs do not individually benefit from it.
This research attempts to discover whether Olson's prediction (increasing agglomeration leads to decreased cooperation) or Wade's prediction (increasing agglomeration leads initially to increased cooperation but after a certain point it leads to decreased cooperation) holds in the case of development CEDs in the EU.

Methodology

This research employs game simulation as the principal research method. Gaming simulation provides an interesting experimental environment for studying strategic behavior in complex systems because (a) it enables monitoring and measurement of strategic behavior as it occurs; (b) participants can report the various patterns of strategic behavior conducted or experienced during the game without repercussions (c) debriefings facilitate discussions on similarities with and lessons for real life with the participants (Kuit et al, 2005). Other research shows that stakeholders actually enjoy participating in games, and that game simulations can provide insights to both researchers and participants alike (Meijer et al, 2005).
The CED cooperation game is a repeated interaction game that stretches five years (rounds) and was played 8 times with 37 participants. Two or three teams (consisting of four to six players) played against each other during the same evening, and from the start I made clear that two prices could be won. The team that succeeded in getting most joint projects for the community would win one price and the CED that succeeded in ending with most money could as well win a prize. These two prizes represent the dilemma CEDs face in their everyday lives; do they cooperate and achieve more for the communities, or do they prefer to secure their own financial situation? Participants were asked to represent their own organization and act accordingly. The value of all joint projects combined is always 25% more than the amount of tokens in the game, to ensure that negotiation is inevitable. If CEDs overfund a certain project (that is, spend more than 2 tokens more than needed for the project), they will loose five of their tokens; the project will nevertheless be executed. If CEDs underfund a certain project (spend less than on the project than the amount that is needed to have it executed), they will loose half of their money and the project will not be executed. Cooperation is thus essential. CEDs can discuss how much money they will invest and can suggestively place publicly the number of tokens they are willing to invest on the various project cards, but need to note down their actual decisions without sharing them with others. Only projects in which more than

one CED participates are executed.
In the three rounds the three levels of cooperation are tested. In the first round CEDs, the first level of cooperation is tested, followed in the second round by the second type etcetera. In the first round CEDs need to invest their money in projects that are related to cooperation that have selective benefits, but no effect for the target population. They can spend their money (they receive 20 tokens at the start of the game) on various projects that the board indicates. They can spend their tokens on projects such as shared fundraising trips and a joint workshop on proposal writing, or invest in their own fundraising projects. CEDs receive a higher return when they invest in joint fundraising projects (rate of return 1;2) as opposed to individual projects (1;1). All participants have this information. As projects need at least two donors, cooperation is necessary. There is a risk to investing in joint projects as tokens can be lost due to over- and underfunding. In both cases, the players are punished for their lack of cooperation. At the end of the first round, the game leader sums all the amounts that CEDs wrote down, and shares with the participants which projects are executed and which are not. The game leaders round off the first round by taking the tokens from or distributing them to the participants, depending on overfunding and underfunding of projects.
In the second round of the game, the second type of cooperation is tested. In this round, there are both selective benefits and benefits for the target group. CEDs can invest their tokens in joint projects that are beneficial for both themselves and the public good, such as joint assessment missions, joint training centers (rates of return 1;1,5). CEDs can also choose to invest in individual projects.
In the third round CEDs need to show whether they can coordinate their activities (third level cooperation). In this round there are no selective benefits, but there are benefits for the target population to be achieved. There are two types of projects, joint projects and individual projects.

The overall game ends with handing over the prizes to the team that has cooperated best, and to the individual CED that ends with most tokens.
Based on a survey of participants prior to their participation in the game simulation I constructed an agglomeration index. The agglomeration index consists of two (equally weighted) components: thematic agglomeration and geographic agglomeration and is different for every organization, as every organization is active on a different set of districts, has head offices in different locations, works on different themes and with different intervention strategies. The highest possible score on the agglomeration index is 2. A higher score indicates that the concerned CED is active on themes and in districts in which many other CEDs are present. We used this information to compose various teams that differed significantly in their average agglomeration. For every team, we calculated a ‘team agglomeration index’ that consists of the product of the average CED agglomeration index and the number of players in the team.
Various control variables that could affect the cooperation behavior of the CEDs were included when analyzing the results. Firstly, individual level controls were included, as individuals can influence game simulations (Hofstede, 2005). Therefore, control variables were included for the position of the participant in the organization, his/her nationality, and his/her sex. Secondly, CEDs are often assumed more outward looking, and more likely to cooperate when they are more mature. Therefore, the age of the CED is included as one of the control variables. Thirdly, as the debriefing made clear that game leaders affected in some recorded instances the course of the game simulation, a control variable was included for the three different game leaders.
Formal debriefings after the two trial game simulations resulted in significant changes in the design of the game. Consequently, the trial games are not included in the results section. An informal debriefing took place after the official games in which participants were invited to share their thoughts on the game simulation, and hint at how there might be a difference between the actual and the game situation. After this debriefing, the three

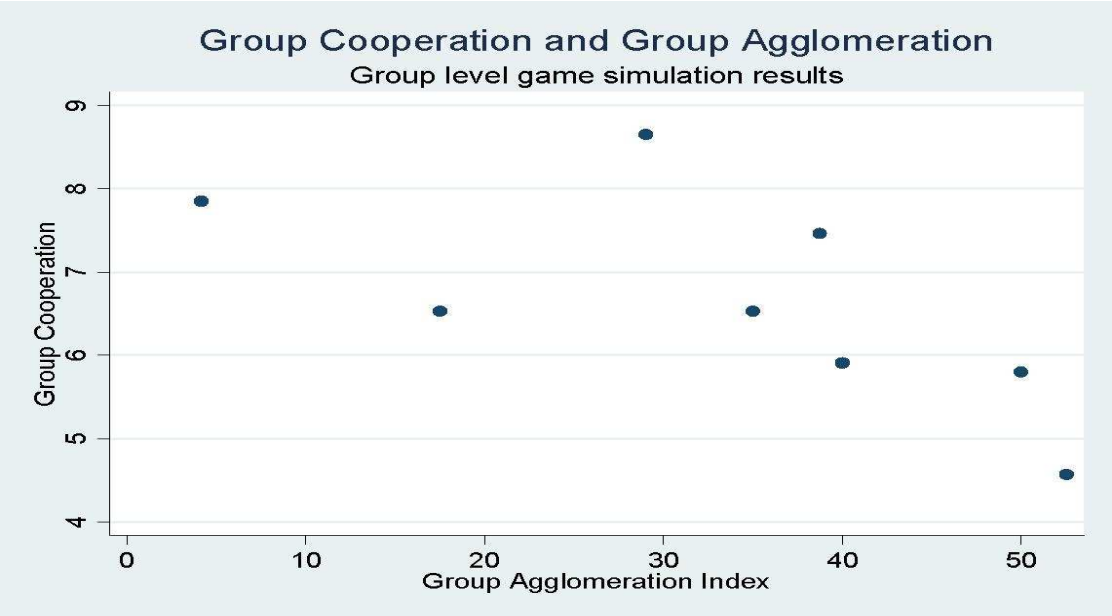
game-leaders had a formal debriefing in which special events during the games were discussed.

Results

We analyze the results at two levels; at the level of the different teams and at the level of the CED. This paper pays more attention to the CED level results, as the number of observations is 37 (N= 8 for the teams). In graph 1 the 'group agglomeration index' is scattered against the group 'cooperation index'. We derive the 'cooperation index' by dividing the value of all joint projects that contributed to community development by the number of players in the team.

Graph 1

Cooperation results of game simulation at the group level



Graph 1 (Olson, 1967) shows that more agglomerated teams, teams that worked more on the same theme and or district and/or had more players, scored lower on cooperation. They succeeded less in funding joint projects that benefited the community. This graph suggests that the downward sloping line of Olson theory resembles more the outcomes of the game simulation, than Wade's inverted U-shape. This paper uses an analysis at the individual level to test whether these results hold when scrutinized in a more systematic way.

The dependent variables in the regressions are the individual propensities to cooperate in the three different rounds. We calculate this propensity by dividing the tokens invested in joint projects by the total tokens a player has. To recap, in the first round shared fundraising, type 1 cooperation, was the aim. This shifted to shared quality improvement, type 2 cooperation, in the second round and to coordination, type 3 cooperation, in the third round. I use a linear regression to test the relation between agglomeration and cooperation. Two different functional form specifications exist, what we call the Olson specification and the Wade specification. In the Olson specification, the individual agglomeration index enters the model, in the Wade specification also a squared function of the agglomeration index is included to test non-linear agglomeration effects (the supposed inversed U-shape).

The results of the regression indicate that in the Olson specification there is a significant (at the 1% level) negative relation between agglomeration and cooperation in two of the rounds of the game, namely round 2 (quality improvement) and round 3 (coordination).

These round specific results are consistent with the predictions of Olson who noted that when supply is fixed (as is the case in round 2 and round 3), and there is increased agglomeration, non-market intermediate groups will display market behavior. In round 1 the supply is not fixed: the round provides possibilities to relax the supply constraint. The absence of a relation between agglomeration and cooperation was predicted by Olson.
The Olson specification explains the results of the game simulation better than Wade's. The agglomeration indicators have the predicted signs in the Wade specifications, but they both lack significance. This suggests that the results of the game simulation are not in line with the Wade's inverted U-shape relationship between agglomeration and cooperation.
The individual level controls are consistent, but not significant. The importance of the game leader becomes apparent by the dummies for the different game leaders. The CEDs that were in a game supervised by game leader 2 were significantly more prone to cooperate in two of the three rounds. In three of the four Wade regressions, the game leader is the only significant variable that can explain the propensity to cooperate. Still, despite this the agglomeration results remains significant in the Olson specification. The goodness of fit of the overall Olson model is about 34%, ranging from 26% in round 1 to 34% in round 2 and 3.

Discussion

The methodology

How valid are the game simulation results? To look at validity there are two central elements, internal validity and external validity. In the discussion we will focus on external validity. To enhance external validity this paper involved both experts and practitioners in the design of the game. However, discussions with stakeholders and experts after the game simulation showed that there were some doubts about the external validity of the game. One of the game leaders put it as follows: 'To what extent does the game measure whether participants are just good in playing games instead of measuring whether they truly cooperate in real life?' One other game leader concurred 'The results of the game simulation show that international staff cooperates more successfully than local staff in the game. Is this true in reality as well, or does it just reflect that the game was conceived by international staff and that the game designers and those international participants operate with similar mindsets and speak the same language?' Yet, we aligned the incentives that CEDs face in the game as much as possible with incentives in the real world. This implied incentives that stimulate and discourage cooperation that stimulate and discourage strategic behavior. The dilemmas in the game simulation and the real life situation are alike. External validity is, however, not only assessed by whether stakeholders agree that the design resembles the real word, but whether outcomes in the game resemble real life outcomes (assuming that there are effective tools to assess those). We therefore highlight some interesting convergences and divergences between the results of the game simulation and the actual CED situation.
A first similarity relates to activities for which CEDs were more likely to cooperate. The network of CEDs in the EU focuses on cooperating on marketing and fundraising (level 1 cooperation) and not on quality control (level 2 cooperation) and coordination (level 3 cooperation). This corresponds to the game simulation results, which showed the highest propensity to cooperate (>85%) in round 1 (the fundraising year). A second similarity is that international staff, who cooperated more successfully in the game simulation, also cooperated more in real life, measured for instance by the number of hours international CEDs work with other CEDs. A last similarity is the strategic behavior of some of the CEDs. Some of the players go at great lengths to secure funding for their own organization, including promising to work on other topics than they were actually interested in and renege on those promises at the moment funding is confirmed.
Despite these similarities, there are also some differences between the outcomes of the

game simulation and results of the survey. CEDs claimed that they cooperate most with organizations that work on the same themes and districts, whereas the game simulation showed that there was a significant negative effect of agglomeration on cooperation (thus indicating that CEDs cooperated actually more with CEDs working on different themes and districts). Another difference is the absence of a correlation between the organizations that are engaged in shared fundraising in real life and the propensity to engage in shared fundraising in the game simulation. How can we explain this? Was the game simulation or the survey biased, or both? There are certain reasons to assume that the outcomes of the game simulation overestimate the extent of cooperation between CEDs. In real life, there are more information asymmetries and higher transaction costs. E.g. in the actual situation, some organizations have better access to information and there is a cost to negotiations due to transport costs. However, in the game simulation, CEDs are sitting at the same table and all have the same information. In addition, in the game simulation we fixed the number of potential CEDs in one game at a maximum of six, whilst this is not the case in the real life situation. Yet, also the responses to the survey can be biased. This holds particularly in this case as an international student affiliated to a foreign CED executed the interviews, which lead to socially desirable answers in some instances.

Conclusion

Let us return to the question in the introduction on the potential of game simulation as a tool for policy research. In social sciences, all methodologies have their flaws and biases. By combining various methods, triangulation, the risk of bias decreases. This article suggests that game simulations can be interesting additional gear in the toolbox of social scientists, but that the behavior of the game leader can have a significant impact on the course of the game. The article suggests that including dummy variables can be a potential way of solving biases that occur because of deviating behavior of game leaders. This article concludes that game simulation can be interesting instrument for policy research, as questionnaires and surveys are prone to lead to social desirable responses in relations of dependency.

The research question

The second aim of this paper was to gain insight in our research question on the relation between the agglomeration of CEDs and cooperation between them. Should European governments be satisfied with this increased agglomeration of CEDs? Does it lead to increased cooperation between them? The findings of the CED cooperation game suggest that increasing agglomeration of CEDs reduces cooperation between them. Olson's prediction on the negative effects of agglomeration on cooperation is dominant. The only domain in which CEDs keep on cooperating, even when the CED market is saturated, is fundraising. Cooperation that benefits their own organization keeps on existing, and cooperation that does not have any benefits for the organizations decreases. The findings suggest that some negative consequences to the agglomeration of CEDs merit attention of practitioners, policy makers and academics.

REFERENCES

Anheier, Helmut K. (2000) Managing non-profit organizations: Towards a new approach. Civil Society Working Paper 1. London School of Economics

Brett, E.A. (1993) 'Voluntary Agencies as Development Organizations: Theorizing the Problem of Efficiency and Accountability'. *Development and Change*, Vol. 24 (2), pp. 269-304**.**

Clague, C. eds. (1997) 'Institutions and Economic Development: Growth and Governance in Less-Developed and Post-Socialist Countries.' Baltimore: John Hopkins University Press.

Cooley, A. & James, R. (2002) 'The NGO Scramble: Organizational Insecurity and the Political Economy of Transnational Action'. *International Security*, Vol. 27 (1), pp. 5-39.

Feinstein, A. H., & Cannon, H. (2002) 'Constructs of simulation evaluation'. *Simulation & Gaming*, Vol. 33(4): pp. 425-440.

Feinstein, A. H., & Cannon, H. (2003)'A Hermeneutical Approach to External Validation of Simulation Models'. *Simulation & Gaming*, Vol. 34 (2) :pp.186-197

Hofstede, Gert Jan (2005) *'Role playing with synthetic cultures: the evasive rules of the game'*. In Riitta Smeds et al (eds) Proceedings of the 9th international workshop of the IFIP Wg 5.7 SIG on Experimental learning in Industrial Management

Koch, D.J. and J. van der Laan (2007) *'The New Geographical Economics of NonProfit Organizations: the agglomeration of development NGOs'*. Paper to be presented at the AEGIS conference 2007, Leyden University, July 2007.

Kuit, M. , I.S. Mayer and M. de Jong (2005) 'The INFRASTRATEGO game: An evaluation of strategic behavior and regulatory regimes in a liberalizing energy market'. *Simulation & Gaming*, Vol. 36 No. 1, March 2005 58-74

Meijer, S. , G. Zúñiga-Arias and S. Sterrenburg (2005) *'Experiences with the mango chain game.'* Paper presented at: The IFIP WG 5.7 Special Interest Group on Experimental Interactive Learning in Industrial Management, Espoo, 2-5 July 2005

Olson, M. (1967) *'The Logic of Collective Action'*. Cambridge: Harvard University Press.

Rose-Ackerman, Susan (1986). The *economics of non-profit institutions: studies in structure* and policy / -New York: Oxford University Press

Ultee, W.C., Arts, W.A., Flap, H.D. (2003) *'Sociologie; vragen, uitspraken, bevindingen.' Groningen: Martinus NIjhoff* p. 255-261

Wade, R.H. (1988) '*Village Republics, Conditions for Collective Action in Southern India*'. Cambridge: Cambridge University Press.

SURADNJA I KONKURENCIJA MEĐU CENTRIMA ZA EKONOMSKI RAZVOJ (CED)

SAŽETAK

Sve veći broj Centara za ekonomski razvoj pojavljuje se u raznim zemljama Europske Unije. Njihov je glavni cilj poticanje transgranične gospodarske suradnje. Posljedice ovog povećanog broja takvih centara nisu posve jasne: potiče li aglomeracija suradnju ili dovodi do konkurencije među centrima? Kao istraživačku metodu koristimo simulaciju igre jer nudi uspješan način za istraživanje politike. Glavni nalaz «CED igre» je da aglomeracija dovodi do pada volje za suradnjom. Nadalje, raspravlja se o potencijalnim prednostima i manama takve simulacije kao alata za istraživanje politike. Ovaj rad sugerira da ovakve simulacije mogu biti interesantan alat za istraživanje politike no, kako i ova metoda ima svoje mane, kombinacija različitih metoda istraživanja će pridonijeti kvalitetnijim rezultatima.

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***Ključne riječi**: teorija igre, konkurencija, suradnja*