Looking Behind Facades: Evaluating Effects of (Automotive) Cluster Promotion

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Abstract

Promoting industrial clusters meanwhile features as a major guideline of regional economic support all over the world. Despite of a vivid debate about the concept and its application, research has rarely empirically evaluated the added effects of cluster initiatives, and applied methods have hardly been adequate to the task. This paper discusses general issues of assessing cluster promotion and suggests an empirical approach. It presents findings of a research project that has, accordingly, investigated patterns of effects of two automotive cluster initiatives in Germany and Austria. Insights concerning methodological and political issues can be derived.

Keywords:

Regional development, Cluster promotion, effects, evaluation, methodology, automotives

JEL classifications: O 18, R 11, R 38, Z 13

German Translation:

EIN BLICK HINTER FASSADEN: BEWERTUNG DER WIRKUNGEN VON (AUTOMOTIVE) CLUSTERFÖRDERUNG

Die Clusterförderung bildet mittlerweile weltweit eine wesentliche Leitidee der regionalen Wirtschaftsförderung. Trotz der lebhaften Debatte über das Clusterkonzept und seine Anwendung sind die durch Clusterinitiativen angeregten Netto-Effekte noch kaum empirisch erforscht worden, und bislang genutzte methodische Ansätze werden der komplexen Aufgabe nicht hinreichend gerecht. Dieser Beitrag diskutiert generelle Erfordernisse der Wirkungsbewertung von Clusterförderung und schlägt einen empirischen Ansatz vor. Er präsentiert die Ergebnisse eines Forschungsprojekts, das dementsprechend die Wirkungsmuster zweiter Automotive-Clusterinitiativen in Deutschland und Österreich

untersucht hat. Dies liefert Erkenntnisse zu methodologischen sowie politischen Implikationen

1. Introduction

Practices of industrial promotion increasingly draw on the cluster idea, with clusters commonly understood as spatial agglomerations of sector related firms and other organizations (universities, support agencies) that derive economic benefits from co-location and collaboration (PORTER, 2000; MARTIN and SUNLEY, 2003). Cluster initiatives (CIs) engage in deliberately supporting such advantages for stimulating competitiveness and collective innovativeness: Professional coordinators foster collaboration and provide other services to registered members (RAINES, 2002; SÖLVELL *et al.*, 2003; ANDERSSON *et al.*, 2004).

The worldwide exploitation of the cluster model for promotion purposes (KETELS *et al.*, 2006) has neither been irritated by the critical debate about the concept's content and usefulness (BENNEWORTH *et al.*, 2003; MARTIN and SUNLEY, 2003; BENNEWORTH and HENRY, 2004; BOSCHMA and KLOOSTERMAN, 2005; ASHEIM *et al.*, 2006) nor by only halfway convincing accounts of extant cluster advantages (HASSINK and WOOD, 1998; BAPTISTA, 2000; MCCANN and ARITA, 2006). The only solid insight refers to the presence of cluster potential in space: identifiable regional sector concentrations (VAN DER LINDE, 2003; BRENNER, 2004; STERNBERG and LITZENBERGER, 2004; BRESCHI and MALERBA, 2005).

There has been much reflection, though, on how cluster support should be designed accounting for regional conditions and objectives (e.g. OECD, 2001; HOSPERS and BEUGELSDIJK, 2002; RAINES, 2002; ENRIGHT, 2003; NEWLANDS, 2003; ANDERSSON *et al.*, 2004). Various schemes have been described and classified (BOEKHOLT and THURIAUX, 1999; EU COMMISSION, 2002; SÖLVELL *et al.*, 2003). Evaluating CI effects, however, has rarely been discussed (ANGELES DIEZ, 2001 and 2002; RAINES, 2003), or empirically explored (OHLER *et al.*, 2001; LEARMONTH *et al.*, 2003; SÖLVELL *et al.*, 2003). Just as BENNEWORTH and HENRY (2004, p. 1011) ask 'where is the value added in the cluster approach?', we need to enquire 'where is the value added in cluster promotion?'. Evidence of effectiveness is due (MARTIN and SUNLEY, 2003; ASHEIM *et al.*, 2006). Major issues are:

- Why does the empirical evaluation of cluster promotion pose specific challenges, hardly offering a look behind facades (put up by CI coordinators)?
- How can assessment adequately take account of the complexities of cluster advantages, and how to discern added effects unambiguously triggered by support measures?
- And, most importantly, which actual impacts of cluster support have been revealed?

Addressing these questions, the paper first discusses general methodological issues of evaluating cluster promotion, also referring to earlier efforts. Then we outline our own systemic approach, subsequently presenting findings of a project that, accordingly, has empirically investigated net effects of two automotive CIs (based on about 50 personal interviews): the publicly implemented Automotive Cluster Styria scheme, Austria, and the private industry association car e.V. - competence center automotive region Aachen/ Euregio Maas-Rhein, Germany. Besides contributing to the 'public versus private' debate (FROMHOLD-EISEBITH and EISEBITH, 2005), the investigations have provided some insight into whether CIs really add value, and in which respects. In conclusion, it is recommended to more critically deal with cluster support.

2. Challenges in evaluating cluster promotion

RAINES' (2003, p. 192) statement that 'existing evaluation of cluster policy has been relatively unsophisticated to date' calls regional scientists to fill the gap. A growing body of literature debates the evaluation of (EU funded) regional structural and innovation policies (*e.g.* OECD, 1997; AUTIO, 1998; GEORGHIOU, 1998; SARACENO, 1999; ANGELES DIEZ, 2002; TAVISTOCK INSTITUTE *et al.,* 2003; BACHTLER and WREN, 2006, introducing a *Regional Studies* special issue on the topic). But empirical evaluations of CI effects, albeit acknowledged as an important task, have rarely been published.[1] Reasons may be: It has been too early for assessment; there is some dominant interest of key actors not to openly reveal promotion impacts as re-

sults are too 'explosive' for being published, and the set of objectives is too complex for being captured by conventional statistical methods.

First, capturing the outcomes of agency requires an *ex post* evaluation approach, conducted after an appropriate operational period of promotion (RAINES, 2003; BACHTLER and WREN, 2006). Therefore, the relatively recent implementation of most CIs, surging from 1999 onwards (SÖLVELL *et al.*, 2003), has in fact hindered recordings of effects. Some initiatives, however, already took off in the early 1990s (*e.g.* in Austria; OHLER *et al.*, 2001) and offer a history of intervention that suffices for assessment. Even when, considering the longer term objectives of cluster promotion, it is still too early for *ex post* evaluation also in these cases, on-going approaches provide viable solutions (BACHTLER and WREN, 2006).

Second, institutional impediments to honest evaluation emerge from political or corporate interests that often dominate cluster schemes (ANDERSSON *et al.*, 2003; ENRIGHT, 2003). Coordinators and political patrons backing up a CI are held responsible for outcomes, which urges them to openly praise (alleged) success and keep quiet about failure, also pressed by interregional competition. If it became evident that cluster support hardly adds value, these agents would run into problems of rectifying expenses. Although many CIs undergo internal evaluation (often based on poor methodology), results remain hidden in the drawer and serve for 'internal use' only (as our own experience shows). Presumably, this sometimes attempts at covering up unsatisfactory findings, which casts some doubt on the actual effectiveness of CIs. In some cases dominant firms may want to hide to which extent an initiative is mainly serving their individual interests instead of supporting the whole member community. Hence, the cluster hype bears dangers that agents create shiny facades and myths of success in order to exploit the popular model for the sake of publicity, which prevents sincere evaluation.

Third, the complex nature of aspired cluster advantages poses major methodological challenges and requires systemic, multi-dimensional evaluation approaches (ANGELES DIEZ, 2001; RAINES, 2003) taking account of multi-actor contexts (VAN DER MEER and EDELENBOS, 2006).

As elaborated below, the cluster ideal may be associated with promotion objectives at various levels, which should all be regarded in assessing outcomes, for instance, by comparing results to objectives or to baseline data. Complicating the task, CIs predominantly yield qualitative and process-related goals which defy the pre-definition of quantitative benchmarks and implies an explorative rather than targeted direction of intervention. Top-down evaluation (looking at overall statistical figures) does not reveal outcomes clearly attributable to support measures, and mainly bottom-up methods (like member surveys) promise to produce relevant insights. Evaluating cluster promotion therefore faces similar methodological pitfalls as assessing regional structural policies, relating to ill-defined objectives, missing counterfactuals, problems to discern causality and additionality, to measure intangible, non-economic implications, to calculate secondary effects, and others (AUTIO, 1998; ANGELES DIEZ, 2002; BACHTLER and WREN, 2006; MARTIN and TYLER, 2006). Anyway, the heterogeneity of CIs in terms of organization, objectives and measures (SÖLVELL *et al.,* 2003) renders the applicability of a generic evaluation concept debatable. Interdependent sets of qualities and processes must be regarded, adapted to specifities of target sectors and local contexts (ANGELES DIEZ, 2002). Considering the intricacies involved, any attempt to evaluate effectiveness will inevitably fall short of some methodical demands. Nonetheless, more objective, scientifically sound empirical evaluations of CIs are highly requested. The few hitherto conducted exercises can hardly be judged as satisfactory, as will be shown for three cases.

The analysis of six public cluster schemes in Upper Austria by OHLER *et al*. (2001) is distinguished by a bottom-up approach (postal survey covering 286 memberships; 26% response rate) and a focus on the systemic feature of collaboration projects. But it failed to properly explore additionalities or intangibles. The study describes qualities of firms (competitiveness, innovativeness) that are attracted to participate, instead of impacts of collaboration on performance; it reveals the demand for, rather than effects of, offered services. It shows, however, that dynamics of cooperating companies hardly differ from non-integrated ones, and that

most firms do not need the cluster scheme for networking (*ibid*., p. 79f). Just for a small minority of respondents membership helps in fulfilling cluster related aspirations (*ibid*., p. 66ff). Consequently, the study tells little about real effects of the cluster programme. But it indicates that outcomes have been rather unimpressive.

The evaluation of the Scottish cluster strategy by LEARMONTH *et al*. (2003) draws on an ambitious approach aiming to identify tangible and intangible effects, and economic impact at the macro (region), meso (cluster) and micro (firm) levels through multi-sectoral modelling techniques. Yet, only the top-down analysis of macro indicators has been published, leaving open the issues of associated cluster and corporate dynamics. Based on input-output data the authors depict sector connections and calculate interdependent GDP, job and productivity growth. Thus they do not address promotion effects at all but quantify the regional economic significance of clusters per se, looking at inter-firm supply links.

The Cluster Initiative Greenbook (SÖLVELL *et al*., 2003), a large-scale effort investigating 238 schemes, provides neither an objective nor representative record of effects (as also conceded by the authors). According to on-line questionnaires completed by CI coordinators, 85% of the CIs have improved cluster competitiveness, 89% have helped the cluster grow, in 59% of all cases causing employment increases; 81% have met their goals, and just 4% have been disappointing and failed to induce much change (*ibid*., p. 11 and 42f). Given the biased type of actors who produced this stunningly positive picture, the study hardly tells anything reliable about actual CI impacts besides subjective perceptions and wishful thinking. The Greenbook, however, did not intend to assess the outcomes of individual schemes but to provide information on the wider phenomenon, which it does in a well reflected manner.

Summing up, evaluations of cluster promotion display several shortcomings: They use inadequate sources of information (asking the wrong people or questions), draw on aggregate indicators or model calculations not discerning effects clearly attributable to promotion, and insufficiently address the interconnected dimensions of cluster advantages (material and imma-

terial aspects, system levels). As almost customary, causalities and additionalities have been neglected (ANGELES DIEZ, 2002; BACHTLER and WREN, 2006; MARTIN and TYLER, 2006).

3. A systemic approach towards capturing real effects of cluster promotion

Trying to overcome such weaknesses, we have pursued our own - pragmatic rather than perfectionist – methodological approach towards capturing major systemic net effects induced by CIs (inspired by ANGELES DIEZ, 2001; RAINES, 2003). Employing bottom-up (survey-based) methods and an *ex-post* perspective, it emphasizes qualitative and relational features, evading the hopeless effort to statistically quantify impact. Interrelated effects on the levels of individual firms, the member collective and the regional economy have been regarded. While information on basic characteristics of an initiative may tell about its political *relevance*, profound empirical work is required for assessing *effects*, also in terms of *impact* (on firms), *outcomes* (induced changes), *fulfilment* (of expectations) or *efficiency* (relating benefits to costs). 'Formative' evaluation (of inputs and activities) must be combined with 'summative' one (results and impacts) (ANGELES DIEZ, 2001; RAINES, 2003).

Initially, we discuss the difficult issue of benchmarks for discerning CI effects. In principle, recorded changes may be compared to baseline data (showing alterations since an initiative was implemented), or to pre-set objectives and expectations (which, however, probably differ between the views of regional scientists, political actors, CI coordinators, company CEOs, and others). No matter which option is chosen, a set of relevant qualities must be defined: Which kinds of effects are predominantly targeted by cluster promotion? Exploring several ways, our approach has applied both 'objective' criteria relating to assumptions commonly associated with ideal type cluster features, and 'subjective' aspirations expressed by CI stakeholders (coordinators, members). This combination possibly allows to compromise between

- generic goals that probably matter in most CIs, which permits some inter-scheme comparison and careful generalizations, and

- case-specific goals that reflect the idiosyncratic nature of each scheme.

Yet, the uniqueness of regional constellations poses major obstacles to comparative assessment (ANGELES DIEZ, 2002; BACHTLER and WREN, 2006). Settings vary due to sector, historical, structural and cultural specifities (OECD, 2001; EU COMMISSION, 2002; SÖLVELL *et al.*, 2003; ANDERSSON *et al.*, 2004), and cluster life cycle phases (AUDRETSCH and FELDMAN, 1996; PRESS, 2006). Objectives may focus on supporting localization externalities, vertical or horizontal networking, collaborative innovation and learning, or overarching economic goals (BOEKHOLT and THURIAUX, 1999; GORDON and MCCANN, 2000; RAINES, 2002). It may be emphasized to better link firms that already have contact or to integrate isolated actors (BENNEWORTH *et al.*, 2003), to foster intra- or extra-regional connections (ISAKSEN, 2005).

Yet, there seems to be a common ground of objectives that guide most CIs and relate to qualities generally associated with the cluster ideal (also being a matter of debate, though; MARTIN and SUNLEY, 2003; BOSCHMA and KLOOSTERMAN, 2005; ASHEIM *et al.*, 2006). These features help to construct a general reference framework for identifying relevant changes, which touches upon the interesting issue to which extent promotion outcomes mirror conceptual assumptions. In our investigated cases the specific sets of goals to some degree also comply with that framework (supported on a wider scale by SÖLVELL *et al.*, 2003). Although CI coordinators rarely draw on a sound conceptual base when designing a scheme, some common sense about essential ambitions has proliferated due to practitioners' associations like The Competitiveness Institute and mutual learning (HOSPERS and BEUGELSDIJK, 2002).

First of all, any CI intends to positively affect the competitiveness and business performance of included firms (PORTER, 2000; ENRIGHT, 2003). This emerges, second, from collective dynamics and relationships that help to source complementary assets, collectively innovate including links to local education/ R&D institutions, jointly exploit localization externalities, or learn from observing competitors nearby (GORDON and MCCANN, 2000; PORTER, 2000; MALMBERG and MASKELL, 2002; NEWLANDS, 2003). This goes in line with 'soft' atmospheric

qualities, intangible assets, which foster socially embedded learning and trust among members and encourage future joint activities (WOLFE and GERTLER, 2004). And third, the entire regional economy is supposed to gain from cluster promotion in terms of induced industrial growth and investments (RAINES, 2002; MCCANN and ARITA, 2006).

Evaluation must explicitly regard interdependencies of all three scales as cluster dynamics emerge from the links between individual business behaviour, collective action and wider economic impacts (RAINES, 2003). Changes in company performance are only attributable to cluster promotion when actually caused by the firm's CI membership; thus simply looking at corporate figures or linkage patterns does not clearly reveal impact. Similarly, the improvement of regional economic indicators only counts for evaluation when evidently driven by impulses of the CI on company and collective performance. This is why neither top-down statistical calculations nor general networking or input-output analyses alone offer convincing methodological solutions (ANGELES DIEZ, 2002; TAVISTOCK INSTITUTE *et al.,* 2003; BACHTLER and WREN, 2006). The best way may be to combine top-down and bottom-up methods in a longitudinal perspective starting from the baseline, which allows for blending the results of

- statistical analyses of changes of regional key indicators possibly affected by a CI (using, for instance, calculation models discussed by MARTIN and TYLER, 2006), and
- empirical surveys that explore all relevant CI implications on the members' level.

(INSERT FIGURE 1 ABOUT HERE)

Our evaluation approach focuses on the second way (which we consider most purposeful) and tries an *ex-post* bottom-up investigation of net effects unambiguously caused by CI membership, addressing three levels (figure 1). Besides extracting 'surface' data on basic features of the initiative from published sources (media, internet, newsletters) and interviews with coordinators, the essential task is to disclose induced 'core' dynamics by directly asking member firms: Which added effects of membership have been noticed? As postal surveys do not adequately seize the – often delicate – honest judgements of respondents on the issue, personal

semi-standardized interviews are recommendable. This also builds up rapport during the conversation, lures confidential statements to the surface, and generally conveys more than words can tell. As mainly the active members of a CI (in contrast to 'sleeping' ones, often a majority) may actually experience effects, investigations should, on purpose, include a biased sample of as many committed company executives as possible (cluster coordinators are usually pleased to help in selecting them). This way various systemic effects of the CI can fairly (yet not fully) credibly be captured. Finally discussing results with a peer group of stakeholders helps to reconfirm findings (an option for triangulation) and adds a participative note (ANGELES DIEZ, 2001; VAN DER MEER and EDELENBOS, 2006).

Acknowledging that the complex synergies produced by CIs require a case study approach (ANGELES DIEZ, 2002), but that collected information can hardly be valued without a comparative angle (RAINES, 2003), we suggest to investigate at least two cases based on the same methodology, which possibly hints at typical as compared to specific impact patterns (figure 1). Although the idiosyncratic nature of regional settings and CI measures limits the scope of generic assessment and inter-scheme comparability (TAVISTOCK INSTITUTE *et al.,* 2003; BACHTLER and WREN, 2006), we venture into this direction, at least learning about two case-specific patterns of impact this way. In this context a thoughtful selection of studied CIs is crucial: they should bear sufficient similarities in order to be comparable, but differ in ways that allow for relevant interpretations. They address, for instance, the same sector group in different regions and institutional settings, or different industries in one region.

4. Patterns of effect of two automotive cluster initiatives

Accordingly, we investigated two same-sector CIs: Automotive Cluster (AC)Styria GmbH, Austria, and industry association car e.V. - competence center automotive region Aachen/ Euregio Maas-Rhein, Germany, both constituted by paying members (www.acstyria.com; www.car-aachen.de). Empirical field work, conducted in 2004-2005, not only served to track

down additionalities of cluster promotion but also to compare a publicly dominated initiative (ACStyria), and a privately governed one (car e.V.), operating in comparable settings regarding the population size of the region (1.2 mio.) and its major city (240,000), a good research and education infrastructure, and some similarities of economic history and restructuring (FROMHOLD-EISEBITH and EISEBITH, 2005). Although the public-private dichotomy seems overstated as CIs mostly operate in a continuum of both agency types (SÖLVELL *et al*., 2003), the distinction is rectifiable (as discussed in FROMHOLD-EISEBITH and EISEBITH, 2005, p. 1254f). It guided the selection of studied examples, exploring major institutional differences between a reputed public cluster scheme like the Austrian one (SFG, 2001; TÖDTLING, 2001; HARTMANN, 2002; TÖDTLING and TRIPPL, 2004) and a comparable private endeavour. Automotive initiatives (accounting for 11% of all schemes captured by SÖLVELL *et al*., 2003) are in fact subject to considerable 'clustering pressure' that emerges from harsh international competition, increased vertical disintegration and demand for coordinating production systems and collective innovativeness (HUDSON and SCHAMP, 1995; SCHAMP et al., 2004), leading to spatial concentration (STERNBERG and LITZENBERGER, 2004). The question is whether cluster promotion really improves the coping abilities of firms.

Information was collected from published sources and surveying comparable sets of actors in both ACStyria and car e.V.. In each case, expert interviews with CI coordinators set the start, who also named active members that could be included. Subsequently, we conducted semi-standardized personal interviews with CEOs/ executives of 17 (car) and 19 member firms (ACStyria), which each lasted about 1-2 hours.[2] Additionally, 6 (car) and 5 (ACStyria) actors from other member organizations (higher education/ R&D, promotion agencies) were visited. In the German case findings have finally been discussed with a peer group of members (March 2006), essentially confirming investigated patterns of effect. In the Styrian case, cluster coordinators refused to have results openly presented to members claiming that this information will not meet firms' interests.

Before depicting findings we must admit some unavoidable methodical shortcomings (caused by resource limitations and the 'first test' character of our project) that restrict the broader validity of results. Small sample sizes of surveyed CIs and member firms hardly allow for robust generalizations, but, due to the depth of investigations, provide plausible hints on effects.[3] And the analysed initiatives, although addressing similar sectors, are marked by various differences which obscure insights derived from comparison. Results thus remain somehow tentative and conjectural, yet instructive.

4.1. 'Surface' characteristics of the cluster initiatives

ACStyria and car e.V. are not comparable regarding some settings, although pursuing several similar cluster-related objectives (as evident from published material and interviews with coordinators): Both aim at supporting the competitiveness of member firms by providing industry-specific information, networking assistance, and collective marketing. But ACStyria employs a broader range of networking and marketing measures than car e.V. and engages in additional fields of cluster-enriching support, as elaborated below. These and other differences need to be considered when interpreting findings.

ACStyria, created 1996 by the state government of Styria (economic promotion office SFG), was first publicly funded for three years and then transformed into a member-financed limited company (GmbH) (SFG, 2001; TÖDTLING, 2001; HARTMANN, 2002). There is still some substantial control by SFG (leading us to categorize the scheme as publicly dominated), with major roles also played by two large companies (among them one car assembling OEM). ACStyria has gained remarkable size in terms of budget (at times co-funded by the EU) and members. A handful of professional staff coordinate various activities including information, networking and marketing services, delegation visits, qualification programs, infrastructure support, and attracting investors. They care for about 190 members covering a wide spectrum of (sometimes just faintly) automotive-related service and manufacturing firms (figure 2).

(INSERT FIGURE 2 ABOUT HERE)

Car e.V. was established later, in spring 2001, and has always lived on members' fees. It was initiated by companies and the regional entrepreneurs association. Dimensions are comparatively small, with just one coordinator caring for about 65 member organizations. Activities include information, networking and cluster marketing, but not the attraction of investments or creation of infrastructure, which typically lie beyond the interests and capacity of private institutions (FROMHOLD-EISEBITH and EISEBITH, 2005). Members comprise automotive service and producing firms, as in the Austrian case, and relatively high shares of education/ R&D institutions and promotion agencies (figure 2). OEMs are explicitly excluded in order to sustain a more balanced power relationship among firms.

Thus, our investigation has covered a larger share of members of car (about 34%) than of ACStyria (barely 13%), but involved roughly the same absolute numbers of active companies in terms of an intentionally biased sample (see endnote 2). Comparing characteristics of included firms, the samples differ just slightly (table 1), with car members showing relatively more R&D affinity. As a rule, included firms have been members for several years, accumulating sufficient experience for allowing judgement on effectiveness.

(INSERT TABLE 1 ABOUT HERE)

4.2. 'Core' effects of the cluster initiatives on individual firms

Basically, our survey explored whether certain effects commonly associated with cluster advantages have been induced at all, compared to the (baseline) situation before a firm's CI membership (exactly 'measuring' them in terms of corporate figures proved impossible). Looking at firm-level effects, virtually all respondents in both regions have noticed some change, but the magnitude is fairly small, often barely noticeable. Only one, two ACStyria members have gained major business impulses. Achieving firm-level impacts generally re-

quires that the CEO actively participates in organized activities (as informants tell). Hence, CI effects probably hardly reach far beyond the investigated minority of active firms.

(INSERT FIGURE 3 ABOUT HERE)

Accordingly, depicted impact (figure 3) must be interpreted as if setting a magnifying glass on a tiny object. But profile details are interesting. Some remarkable similarities between the samples regarding effect frequencies possibly reveal typical patterns for (automotive) cluster promotion, although this generalization is speculative. Firms mostly feel better informed and supported in corporate marketing, which only indirectly affects their dynamics. About half of them have received (minor) innovation impulses, shedding some positive light on promotion effects. But rare impacts on productivity, sales or employment growth, on risk or cost reductions indicate that advantages derived from strategic partnering remain below cluster-related assumptions (PORTER, 2000). The small impact on local embedding especially recorded for car members proves that our study has really captured additionalities, as Aachen's automotive engineering firms have always been well integrated into personal networks with local universities (table 1).

Figure 3 also shows some deviations between both samples, possibly influenced by case-specific promotion features and contexts (industry structure, institutional characteristics of the CIs, measures). ACStyria more often helped to extend market reach and reduce risks or costs, while car rather supported recruitment of qualified staff and outsourcing. Carefully interpreting these findings, the former scheme seems to mainly affect cluster processes concerning the production system (material transactions directly linked with production), whereas the latter stimulates the knowledge system of members (interactive learning, competence-based flexible specialization), drawing on a distinction by BELL and ALBU (1999). Additional support for this assumption is presented below.

Firm-level promotion effects can also be read from subjective judgements on fulfilment of expectations (comparing results to objectives), counting on informants' abilities to estimate

the scope and limits of achievable advantages. Findings, however, may be interpreted ambiguously: high levels of satisfaction indicate that promotion has really met objectives or that members have not expected much (in Styria, several firms joined the CI mainly due to local patriotism). Our results again reveal similarities of the studied examples: expectations have been completely fulfilled for almost every third firm, partly fulfilled for about two thirds, with very few dissatisfied respondents. Almost all interviewees see a positive relation between the benefits received from membership and paid fees (1,000-10,000 € p.a. for car e.V., 500-7,000 € p.a. for ACStyria depending on sales), or do not even think about the costs (a proper willingness-to-pay analysis has not been conducted, though).

Looking at kinds of fulfilled expectations, in both cases firms have been satisfied especially with expanded informal contacts (in ACStyria also including political actors) and local image effects. Several car members also noticed a strengthening of 'weak ties'; ACStyria members highlight information provision and labour qualification. Dissatisfaction has widely been expressed concerning a deficient creation of new business connections among members. In ACStyria this relates mostly to links in the value chain, while car members miss the combination of technical competences for serving external customers (supporting the production versus knowledge system assumption stated above). Many Austrian firms are also disappointed about a loss of focus of their initiative by increased new entries of service providers just remotely associated with automotives, which target the members as a customer base (this has already urged several companies to form a separate initiative, Styria Technology Network). Car members feel insufficiently informed about potential partners, miss help in acquiring qualified staff or gains in the international reputation of local strengths.

4.3. 'Core' effects of the cluster initiatives on the (networked) collective

Findings confirm that firm-level impacts are connected with collective dynamics emerging from strengthened relationships with local partners (GORDON and MCCANN, 2000; PORTER,

2000). Our study investigated induced linkages and 'soft' intangible assets commonly regarded as immaterial cluster qualities (MALMBERG and MASKELL, 2002).

Executives were asked to tell which kinds of links have been enhanced by their membership. Thus we have not 'counted' new contacts (as suggested by RAINES, 2003; anyway, numbers of collaborations or partners hardly correlate with economic importance), but learnt whether certain categories of links have been fostered at all. It was impossible, though, to specify business implications of these relationships because they only materialize over time, if at all (a typical evaluation gap with regard to longer-term effects of networking; AUTIO, 1998; TAVISTOCK INSTITUTE *et al.,* 2003; BACHTLER and WREN, 2006). Yet, respondents unanimously confirm that noticed impact on firm performance stems from increased interaction among members, with intangible forms of mutual learning proving at least as important as tangible linkages.

(INSERT FIGURE 4 ABOUT HERE)

Evidently, cluster promotion better embeds active members into information flows and personal relationships (figure 4). Less frequent are increased links in the value chain or R&D cooperation. Concerning functional relationships especially ACStyria, despite of its long existence, is marked by unfulfilled hopes ('impact expected'). This goes in line with earlier studies revealing weak regional automotive supply links (ADAMETZ *et al.*, 2000).

For joining the CI previous contacts to other members or coordinators play a major role. In both cases, only every third to fourth sample firm has entered without them. Initiatives mainly create a forum to solidify or functionalize transient links rather than establishing new ones (confirming BENNEWORTH *et al*., 2003). Similarly, membership has mostly not changed the tried and tested support systems of companies (often including the chamber of commerce, long-term business partners, service professionals, or - in the Aachen case – universities), especially not in the young car initiative. Just ACStyria has gained importance as a consultant or networking hub for a number of respondents. But most firms welcome created additional con-

tact options, which broaden the scope and offer an industry-specific selection of potential collaborators nearby. In sum, however, impulses of both CIs on local networking are somehow disappointing compared to the high emphasis put on this aspect by cluster promotion (OEDC, 2001; RAINES, 2002; ANDERSSON *et al*., 2004).

Looking at external links of member firms, an asset increasingly addressed by initiatives, effects have especially been achieved by ACStyria: about two thirds of interviewees could expand international connections (*e.g.* by delegation visits, which also foster networking among members), mainly to Eastern Europe, Germany and China. In car e.V. only every third firm has gained international contacts (which is not surprising given its location in Germany, itself a major automotive location). In both cases, however, extended collaboration opportunities do not add much to the already well established external business network of firms.

Apparently, induced collective dynamics offer options for future exploitation, a seedbed rather than directly producing outcomes, as corroborated by other identified intangible effects. Both schemes have raised a wide range of non-economic, atmospheric assets, notably community spirit, feelings of friendship, trust and collaborative attitudes (figure 5). Here ACStyria has induced wider impact than car, based on its longer existence. The relatively low importance of competition in the car community may be explained by the fact that active companies hardly have competitors among members due to the selective club nature of inclusion typifying private initiatives (FROMHOLD-EISEBITH and EISEBITH, 2005).

(INSERT FIGURE 5 ABOUT HERE).

Overall, collective assets created by cluster promotion apparently bear a 'continuous stand-by' character which hardly changes over time: Both CIs boost awareness of increased contact options and feelings of comfort among members, yet rarely entail cooperative action and, consequently, impact on firm performance. The accommodating atmosphere may still, in non-measurable ways, positively influence corporate success (MALMBERG and MASKELL, 2002).

4.4. 'Core' effects of the cluster initiatives on the regional economy

The regional economy may profit from aggregate group-internal dynamics and wider image effects radiating from a CI. In this respect the objectives of the compared initiatives fundamentally differ, partly due to their public against private origin. ACStyria was installed as a driver of regional industrial restructuring and forms part of a system of interacting support approaches (TÖDTLING, 2001; TÖDTLING and TRIPPL, 2004). Representing a Styrian flagship scheme it enjoys extensive marketing that created a popular brand. Meanwhile a worldwide renowned model CI, its image effects reach far beyond the group of members (SFG, 2001; HARTMANN, 2002; SÖLVELL *et al*., 2003). Car, in contrast, was started mainly for serving members' interests, considering the region as the business framework of firms, not as a subject of promotion per se. Activities therefore focus on members only.

Consequently, regional economic effects of ACStyria have ostensibly been much larger than of car, as confirmed by interviewed executives. Although both samples widely agree that the CI has raised regional recognition of existing automotive competences, all but two ACStyria members, against a third in car, see image effects reaching beyond regional borders; three quarters (ACStyria), against none (car), have noticed supportive impulses on the entire regional economy.

A main reason for this discrepancy is that ACStyria has also enriched regional infrastructure (higher education, technology centres), implemented labour qualification programs, and proactively attracted sector-related companies to the locality. According to an expert interview, investment of 1.95 billion € creating 10,000 jobs has been generated jointly by the state promotion agency SFG and ACStyria in 1999-2003. This refers to the attraction of about 20 supply firms delivering to the automobile assembler Magna (manufacturing various brands), the largest player on the spot. Especially this success has been referred to by our interview partners. Some, however, question whether added firms and jobs really account for the influence of ACStyria against that of the existence of Magna itself.

This leads to critical considerations regarding risks associated with the regional implications of large-scale (public) cluster promotion. Big success in one field also creates dangerous dependencies, and more than once we heard sceptical remarks about too much emphasis being put on fostering rather traditional, mid-technology sectors. The existence of a focal OEM (which, as some respondents suspect, mainly exploits the cluster scheme to its own advantage) raises fears that next generation automobiles may not be assembled here any more, but at lower-cost locations. This could quickly tear down established facades, and the only hope is that attracted supply firms will stay in the region despite of the defected customer. Apart from impulses by Magna and a few other players on regional economic dynamics, the additionalities truly caused by ACStyria may be much less impressive.

Car has, by its different nature, not been capable of producing substantial regional impact besides raising some attention for the regional automotive strengths. This asset, however, may over time help to collectively market joint competences for the sake of regional economic stability, even growth. Activities possibly bearing wider effects, like the promotion of (university) spin-off firms and the attraction of investors to the Aachen region, lie in the hands of other agencies (themselves members of car e.V.) that add to overall outcomes.

We have not engaged in top-down calculating macro level effects of the compared CIs using regional statistics as this exercise seems useless. Empirical findings indicate that impact measured in conventional terms (additional sales, employment etc.) is too small in order to clearly exhibit in statistics and is not discernable from influences by other major factors, such as the behaviour of large customers, external market dynamics, technology and organizational changes, and developments at competing automotive locations.

4. Conclusions

Returning to the question ‘where is the value added in cluster promotion’, our qualitative multi-level evaluation approach hints at some achievements, but also deficiencies in relation

to conceptual assumptions as well as stated promotion objectives. This may disappoint cluster enthusiasts and please critics.

Empirical investigations of induced additionalities of two automotive CIs divulge that, apparently, impact on member firms' business performance is fairly small, but noticeable for all who actively participate. There are only minor aggregate effects on the regional economy, except for efforts to regionally attract investors (which is actually not at the heart of cluster promotion). On the level of the cluster collective, initiatives create new contacts and remarkable intangible assets, but they rarely materialise into functional links and sustain a 'continuous stand-by' status. Induced feelings of comfort hardly perceptibly affect member firms' business performance. This reverberates ANGELES DIEZ' (2002, p. 298f) finding that 'non-economic impact of new regional policies […] appears as the most significant impact highlighted in all the evaluations reviewed', and 'that the most significant effects of these policies are produced in the social, institutional and cultural spheres'. Cluster promotion therefore seems to help (automotive) firms to react to economic challenges predominantly by enhancing social resources. But does this sufficiently rectify costly schemes?

Regarding depicted profiles of effects, the two investigated automotive CIs display some startling similarities possibly hinting at typical patterns. Our project outline, however, only permits careful, tentative generalizations and requires confirmation by further studies. Still, the degree of congruence is surprising given the hardly deterministic relationship between support and outcomes as even 'very similar policies can produce very different club goods tailored to local needs' (BENNEWORTH *et al.*, 2003, p. 518). At the same time, discrepancies between patterns of effect of both examples point at case-specific dynamics associated with CIs, grounding in the idiosyncratic interplay of regional and industrial conditions, age, resource inputs and activity portfolios of schemes, and other features (ANGELES DIEZ, 2001). Interestingly, our results indicate that a lean-budget private CI can in some respects be just as effective, and even more efficient, than a large, publicly controlled one (supporting FROMHOLD-EISEBITH

and EISEBITH, 2005). Generally, effects of cluster schemes are determined by a mix of various factors, including personal qualities of coordinators (new staff can at times 'turn around' the entire setting to the better or the worse).

In sum, the impact of cluster promotion appears to be less significant than, and structurally different from, what is commonly assumed. Coordinators should more candidly and critically deal with the issue, exchanging the urge to build up facades against more realistic attitudes. This does not mean, however, that cluster support is worthless or should be abandoned, as it produces some positive additionalities. But if there is a choice between letting a nascent private CI further evolve or driving forward a costly public effort targeting the same sector group (which marks the situation for automotive sectors both in the German state of Northrhine-Westphalia and, in some way, in Austrian Styria), the first option shall be prefered by its better cost-benefit ratio. In order to generally achieve better outcomes, our study suggest that cluster promotion needs to focus more on functionalizing members' relationships, indirectly also raising impact on business performance and the regional economy.

Finally reflecting on methodology, our assessment has, by its pragmatic approach, only provided conjectural insights into CI effects, based on small, however meaningful samples. Several findings correspond with results of regional policy evaluations (ANGELES DIEZ, 2002; BACHTLER and WREN, 2006), and the *ex-post*, bottom-up method has credibly conveyed causality and additionality, as required for a sound evaluation rationale. Absolute limits to assessment remain, such as the problem to capture secondary, longer-term dynamics evolving from initial sparks. And our study has traced perceptions of impact taken from the minds of people instead of solid facts, that are impossible to determine in the case of CI. Hence results may be biased by constructivist forces emerging from the specific industrial, cultural and personal backgrounds of informants, even instant moods influencing their views at the interview date. We can only get closer, but never completely know the truth.

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[1] OHLER *et al*. (2001), LEARMONTH *et al*. (2003) and SÖLVELL *et al*. (2003) are the only available studies so far. Raised concern for the task, though, is indicated by a new greenbook on evaluating cluster initiatives currently compiled under the auspices of The Competitiveness Institute, scheduled to come out in 2007 (www.competitiveness.org).

[2] We tried to include more companies, but reached limits due to lacking interest of other contacted firms to be interviewed (mainly in the case of car e.V.), failure to coordinate an interview date, or several cases of firms just cancelling their membership (mainly in the case of ACStyria). This appears to indicate also limits of engagement, hence potentially of effectiveness of the studied initiatives, which adds to the results.

[3] The research approach should definitely be applied to a wider number of cluster initiatives in the future, preferably in a EU framework.

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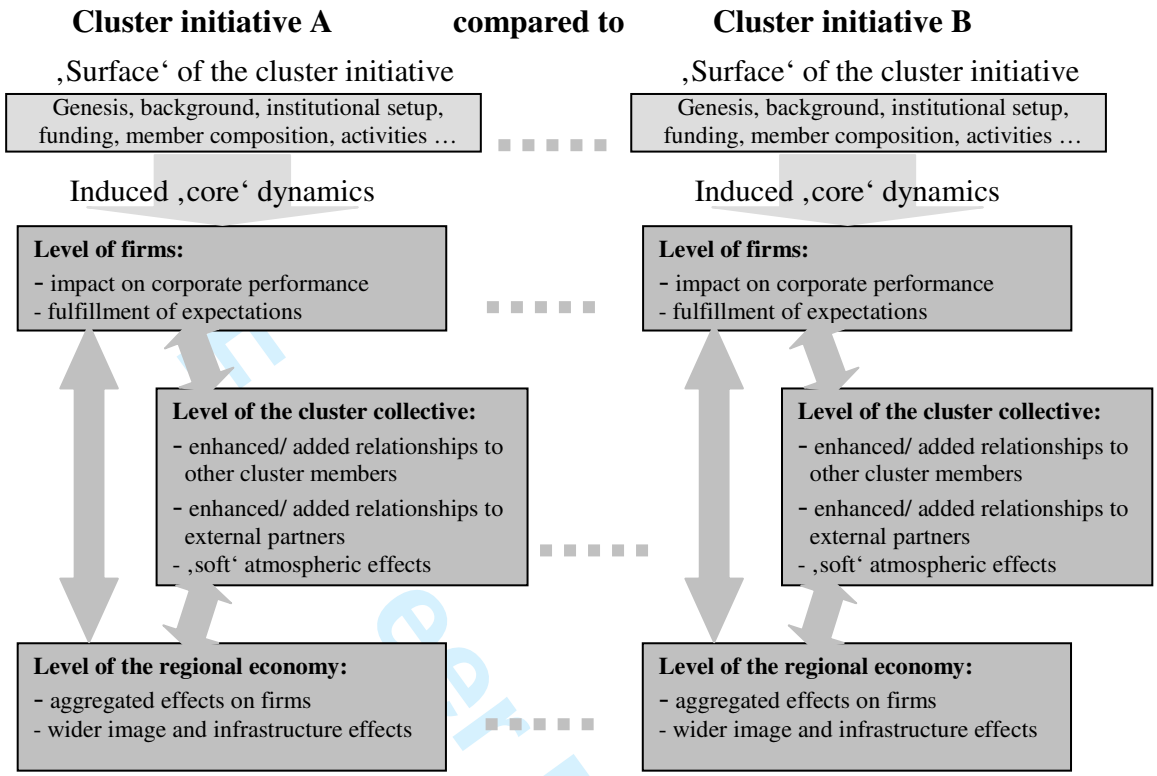
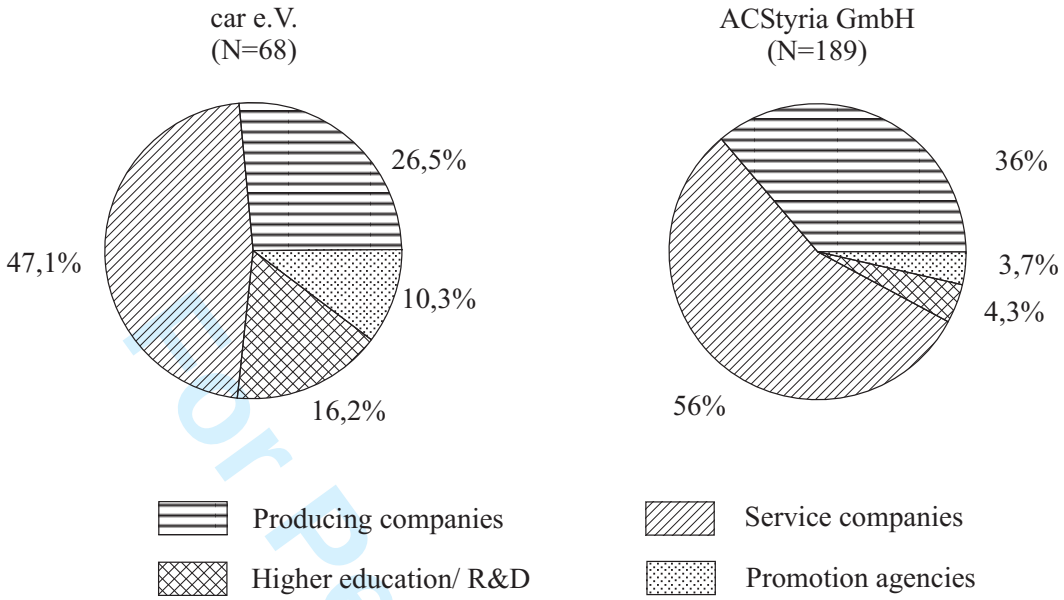
Figure 1: Systemic approach towards evaluating effects of cluster initiatives



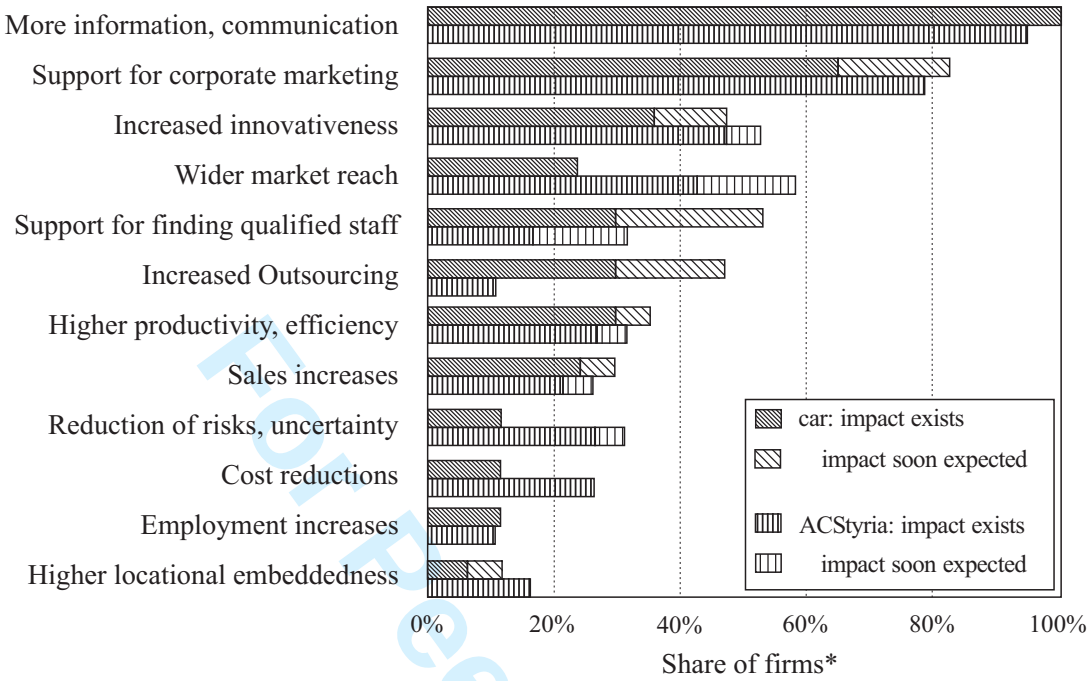
Source: Depiction by the authors

Figure 2: Members of the cluster initiatives car e.V. and ACStyria GmbH (in 2005)



Source: Depiction by the authors based on member lists at www.car-aachen.de and www.acstyria.com

Figure 3: Impact of car e.V. and ACStyria GmbH on dynamics of member firms



* According to semi-standardized interviews with 17 member firms of car e.V. and 19 of ACStyria GmbH.

Source: Based on company interviews by the authors in 2004-2005

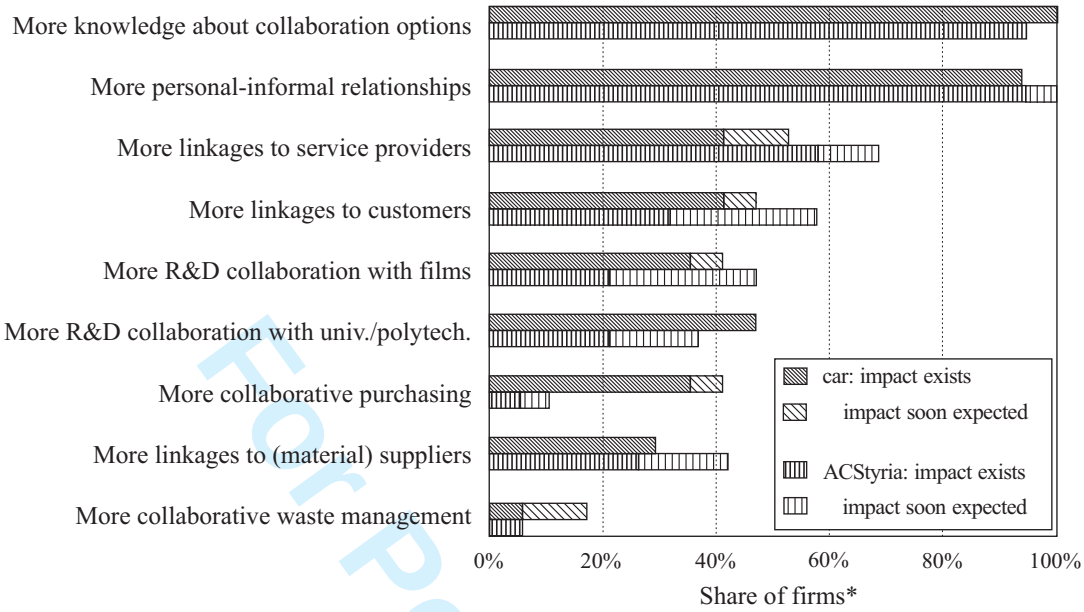
Table 1: Selected characteristics of interviewed firms in car e.V. and ACStyria GmbH

	car e.V. (n=17)	**ACStyria GmbH** (n=19)
Type of company:		
Producers	6 (35%)*	9 (47%)
Service providers	11 (65%)	10 (53%)
Status of company:		
Independent/ HQ	12 (71%)	15 (79%)
Branch of company		
with HQ inland	3	-
with HQ abroad	2	4
Year of local establishment:		
Before 1990	11 (65%)	11 (58%)
After 1990	6 (35%)	8 (42%)
Number of locally employed people, mean average per firm	168	140
Firms with a high R&D intensity (≥10% of sales)	13 (76%)	10 (53%)
Emergence from a local university/ polytechnic (e.g. spin-offs)	13 (76%)	7 (37%)
Active cluster participation:		
highly active	6 (35%)	6 (32%)
medium active	8 (47%)	9 (47%)
rather passive	3 (18%)	4 (21%)

* Based on such small sample sizes, calculated percentages can only be taken as a rough indication of structural characteristics and differences between the two investigated cases.

Source: Based on company interviews by the authors in 2004-2005

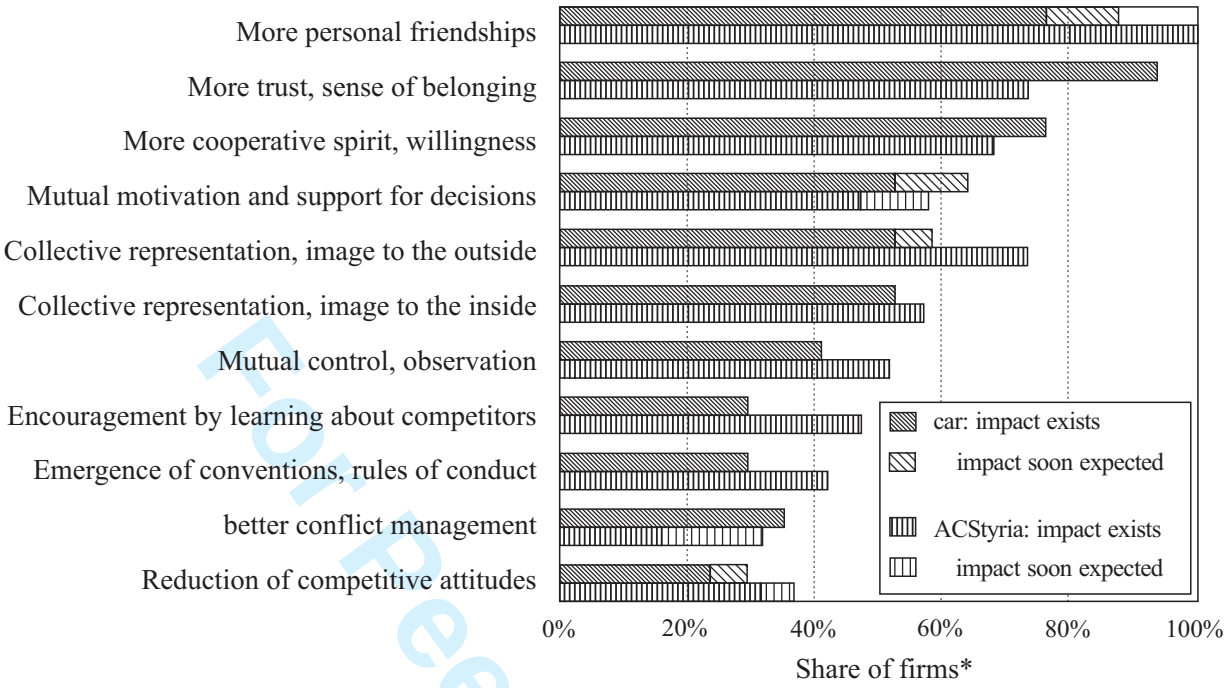
Figure 4: Cluster relationships of firms enhanced by car e.V. and ACStyria GmbH



* According to semi-standardized interviews with 17 member firms of car e.V. and 19 of ACStyria GmbH.

Source: Based on company interviews by the authors in 2004-2005

Figure 5: 'Soft' collective assets induced by car e.V. and ACStyria GmbH



* According to semi-standardized interviews with 17 member firms of car e.V. and 19 of ACStyria GmbH.

Source: Based on company interviews by the authors in 2004-2005