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Clusters or un-clustered industries? Where inter-firm marketing cooperation matters

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Abstract

Purpose – This paper aims to focus on the perceived role of clusters in inter-firm cooperation and social networks.

Design/methodology/approach – The study was carried out in a region of Latin America where limited research has been conducted in terms of inter-firm relationships. Managers from three key natural resources-based industries in Chile participated in the survey; one of these industries constituted a well-defined cluster whereas the other two did not. The survey assessed managers' perceptions of the benefits and opportunities of inter-firm cooperation in strategic marketing activities.

Findings – Results support the advantages of clusters. Managers of firms which are part of clustered industries tend to perceive more benefits and opportunities for inter-firm co-operation in marketing activities. Additionally, significant differences between clustered and non-clustered industries in terms of their co-operation behavior and objectives were found.

Research limitations/implications – The findings shed light on strategies for the enhancement of inter-firm cooperation in marketing, of particular value for marketers in small-and-medium sized enterprises. The paper suggests establishing new clusters and promoting more regional clusters policies since clustering seems to provide better and positive inter-firm interaction leading to cooperation.

Practical implications – There are lessons to be learned at national and regional levels for Latin American and emerging economies fostering new industry cluster policies.

Originality/value – Clustered firms and industries may result in more innovative marketing strategies at both local and international levels than non-clustered firms. The authors encourage regional development bodies to foster more cooperation among firms and trade associations.

Keywords Inter-firm cooperation, Knowledge exchange, Regional clusters, Industrial marketing, Latin America, Marketing information, Relationship marketing, Chile

Paper type Research paper

1. Introduction

The focus of this research is the comparison between clustered and non-clustered natural resources-based industries. We specifically compare the issues of inter-organizational behavior and firm relations for achieving marketing cooperation. We also look at the specific social networking elements that help to reinforce these interactions for collaboration at both horizontal and vertical levels.

The contribution of clusters to economic growth and the extent to which governments should support clusters have been frequently researched (Jungwirth and Muller, 2010). Advantages of agglomeration or clustering have been argued

theoretically and empirically starting with Marshall (1920) but limited research actually compared clustered and non-clustered companies. Among the few studies dealing with this specific area of research are Lublinski (2003), Bagchi-Sen (2004) and Van Geenhuizen and Reyes-Gonzalez (2007). Those studies also called for further research as conclusions were mixed. For example, Van Geenhuizen and Reyes-Gonzalez (2007) studied the biotechnology industry in the Netherlands and found that except for their largest cluster, a clustered location has no significant influence on innovation and speed of growth.

Apart from the above, the business-to-business and marketing perspectives of firms collaboration in regional clusters compared to non-clustered firms has not been reported. Brown and Bell (2001) and Brown *et al.* (2010) argued that limited research explored the impact of clustering

on marketing activities in a domestic and international context. Therefore, the purpose of this study is to compare the inter-firm marketing strategies between a clustered regional industry sector and non-clustered regional industry sectors based on natural resources and located in an emerging economy context in Latin America. This setting is different to the traditional research setting of high technology or biotechnology industries studied in the USA or Europe. For example Pels *et al.* (2004) found that compared to the US, firms in less developed economies like Argentina, tend to have lower use of information technology in marketing and a greater emphasis on face-to-face interaction. This study's approach brings new perspectives from under-researched industry sectors and different geographical setting in order to advance the knowledge of inter-firm relations and inter-firm cooperation.

Based on the extant literature on the effects of geographical co-location and social networks on general inter-firm interactions, we specifically studied the firms' relations for creating marketing cooperation. The research questions surrounding this study are related to the significant differences between cluster and non-cluster industries and the perceived overall usefulness of co-location for marketing cooperation. To put it in another context, our key research question is "what are the significant differences in variables of inter-firm marketing cooperation among cluster and non-cluster firms?"

2. Theory development

The economic geography and strategic management literature does not provide a unique definition for a cluster. However, the cluster concept defined by Porter (1990) has stimulated discussion that goes beyond traditional explanations of agglomeration in economic geography (Gordon and McCann, 2000). Porter (1990) argued that leading export companies in the USA economy do not work in isolation. Consequently, these firms are grouping into what he called "clusters", which can be defined as a set of industries related horizontally and vertically having different kind of interactions, ending with greater levels of productivity. According to Porter (2000), the geographic scope of a cluster can range from a single city or state to a country or even a group of neighboring countries. This makes the cluster definition broader involving geographical and social aspects of inter-organizational behavior for firms and related institutions. There have been many other attempts to explain this concept from both business and economic geography perspectives (see for example Enright, 1996; Rosenfeld, 1997; Feser, 1998). More recently, clusters have been defined as "local or regional dimension of networks" (Van Dennerg *et al.*, 2001, p. 187).

It is well known that co-location allows for lower transportation and transaction costs as travel, time and increased trust should produce lower costs (Lublinski, 2003). Clusters can also attract the required skilled labour, the mobility of which can enhance the exchange of ideas and knowledge throughout the cluster (Camagni, 1991). There are also un-traded benefits that can arise such as mutual co-operation, learning and resource sharing and are sometimes referred to as either embedded benefits or "un-traded-interdependencies" (Granovetter, 1985 and Storper, 1993).

The cluster literature also emphasizes numerous benefits for small businesses. This is especially the case given their resource constraints, absence of internal specialisms and relatively weak supplier and market power (Blackburn and Conway, 2008). Relationships of cluster firms are more likely to be long term and bonded (Ebers, 1997), with greater levels of trust (Mackinnon *et al.*, 2004) and inter-organizational governance (Bell *et al.*, 2009). The subsequent development of trust between cluster members enhances the commercial relationship between firms. Thus, clustering adds a new dimension to the marketing aspects of buyer-seller relationships. Brown and Bell (2001) and Brown *et al.* (2010) also noticed not only the benefits of clusters, but also the costs of industry clusters which they referred to as "negative externalities". Examples include congestions, increased competition in firm costs, labour, ineffective operation of network relationships, and exclusion of newcomers or outsiders.

To evaluate localized networks of economic activity and their ability to become a driving force of a region, it is crucial to place their structure within the process of knowledge creation. Bathelt (2005) argued that knowledge creation and better performance does not occur in every agglomeration automatically, rather it only occurs in firms in well-formed clusters. Recent research (Eisingerich *et al.*, 2010) draws on social network theory to develop a model of regional cluster performance, which suggests that high performing regional clusters are underpinned by network strength and network openness, but that the effects of these on the performance of a cluster as a whole are moderated by environmental uncertainty.

Acknowledging the literature, we define a regional cluster based on the geographical proximity of firms related to the same industry and by the extent they are linked by commonalities and complementarities. A considerable amount of research has dealt with clusters and industrial districts, while only limited previous research has explored differences between clustered and non-clustered industrial units (Lublinski, 2003). One such study was conducted by Bagchi-Sen (2004), who examined the differences between collaborators and non-collaborators in the US biotechnology cluster. In doing so, the relationships between R&D intensity, collaboration, innovation, and location were examined. The main conclusion of this study was that firms with higher levels of R&D intensity are more intent on engaging in R&D alliances, especially research collaboration with universities. Moreover, more firms located in defined clusters of the biotechnology industry engaged in collaborative R&D that firms located elsewhere. Thereafter, location continues to be important for starting-up companies. On the other hand, Sorenson and Audia (2000) assert that since clusters entail stronger and unfavorable competition, the clusters' advantage based on geographical concentration, is heterogeneity in entrepreneurial opportunities, rather than differential performance. More recently, a similar vein of research evidence has supported the notion that clustering does matter for firms' performance (Tonoyan *et al.*, 2010; Jungwirth and Muller, 2010).

Notwithstanding the importance of those findings, it is interesting to note that little has been done to examine other types of cooperation inside clusters, such as marketing. Recent exceptions is the recent work of Felzensztein and Gimmon (2008, 2009) and Felzensztein *et al.* (2010) who

focused on market-based networking within natural resource clusters. This type of cooperation requires not only a proactive attitude towards cooperation and commitment (Morgan and Hunt, 1994), but also the construction of social capital among the participants of a cooperative network (Gulati *et al.*, 2000; Gulati, 2007).

2.1 Inter-firm marketing cooperation in clusters

The relevance of geographical proximity for inter-firm cooperation and clusters benefits, especially for small firms has been questioned. Edwards *et al.* (2006) found evidence that small firm owners are only loosely connected to their local economy because the niche markets they serve go beyond the local. There was also a reticence by owner managers in becoming too involved with local partners, wishing instead to maintain their independence and autonomy that might be threatened if they became too reliant on others in the local economy. This was seen as having a general constraining effect upon firm learning and innovation because of the tradition of being insular and autonomous (Laforet and Tann, 2006).

In a recent study, Arikan (2009) developed a model that outlines the antecedents, as they relate to inter-firm knowledge exchanges among cluster firms, of a cluster's ability to enhance member firms' knowledge creation efforts. Overall, the model provides a comprehensive understanding of the antecedents of enhanced knowledge creation within clusters as well as new interest for scholars dealing with either cluster or firm-level outcomes. The study provides clustered firms with a better understanding of the role they play in determining their cluster's innovative outcomes and the knowledge-related implications.

Taking the work of Arikan (2009), Bell *et al.* (2009) and Brown *et al.* (2010) further, the kind of inter-firm knowledge exchanges among cluster firms that we specifically refer to in this study is inter-firm marketing cooperation. We define it as the positive externalities that create specific marketing benefits, as a result of active participation between co-located firms. Inter-firm cooperation in marketing captures many types of inter-organizational cooperative arrangements, including: contractual and non-contractual joint ventures, market research activities and specifically joint marketing activities, such as joint distribution strategies, co-branding and joint product development. This inter-firm cooperation can be vertical with buyers and/or suppliers or horizontal across different value chain activities.

The benefits from cooperative strategies among firms have been a key research topic within the Industrial Marketing and Purchasing Group (IMP) literature (see Hakansson *et al.*, 2006). Industrial relationships may lead to better forms of interactions among firms and then to cooperation, which is defined as "complementary actions taken by firms in inter-dependent relationships to achieve mutual outcomes over time" (Anderson and Narus, 1990, p. 42). Previous literature on natural resources-based clusters also suggests that co-located firms may exhibit desirable levels of inter-firm cooperation (Felzensztein and Gimmon, 2009; Felzensztein *et al.*, 2010).

Based on previous findings in the literature of inter-firm cooperation, knowledge exchange and clusters, we propose:

P1. Clustered firms may exhibit higher levels of inter-firm cooperation in marketing than non-clustered firms.

2.2 Social networks in clusters

It is well documented that networks can be the basis of a rich information exchange that enables firms to learn about new alliance and market opportunities with reliable partners (Lechner and Dowling, 2003). The development and gradual building of such networks of relationships, in which firms are embedded, influences a firm's conduct and its collaboration activities. This of course implies a degree of mutual trust among partners, reducing search costs for new partners, limiting the cost of coordination between partners, and minimizing the unpredictability and risk of hazardous behavior by alliance partners which in turn shape behavior and outcomes of firms. The positive effects of network resources are shown to be applicable even to newly formed entrepreneurial firms (Gulati and Nickerson, 2008).

The extant literature is clear that geographical proximity facilitates repeated interactions, which, in turn, promote the development of formal and informal social and professional networks. These networks serve as conduits for information exchange about important technological developments and emerging market opportunities (Liebeskind *et al.*, 1996; Owen-Smith and Powell, 2004; Stuart and Sorenson, 2003). Furthermore, repetition of interactions enables the exchange partners to observe and monitor each other's behavior, providing a means for partners to develop norms of exchange and trust based on the expectation of future interaction (e.g., Axelrod, 1984; Eisingerich *et al.*, 2010). Additionally, Feldman and Lichtenberg (1998) have demonstrated that co-location provides interaction opportunities and the sharing of experience necessary for inter-organizational collaboration (especially when tacitness is high). This body of research has proved that by facilitating repeated interactions and development of overlapping social and professional connections, concentrations of firms engaged in similar activities in a particular location create an environment that facilitates trust and the rapid and effective diffusion of ideas and collaborations (Coleman, 1988; Kogut, 2000).

Formal and informal social networks require interaction. These inter-firm relationships refer to collaborative arrangements between independent firms in order to share resources on an ongoing basis. This interactional context in social networks includes issues of trust. Coutler and Coutler (2003) asserted that trust may be seen as a complex construct that includes integrity, honesty and confidence that one party places in another. Trust also involves issues of credibility among parties and implies an active participation in the "soft social elements" of inter-firm co-operation. Consequently, trust is an important influence on interpersonal and inter-group behavior as well as a critical element of competitive success in firms. Furthermore, being a member of a business network such as a trade association provides good opportunities for the development of ties, in which the maintenance of weak ties is an outcome (Granovetter, 1973). Personal ties also increase the likelihood of recognizing opportunities in regional clusters and facilitate the mobilization of resources for a start-up, both activities lowering the barriers to entry within clusters (Stam, 2009). However, high number of new entrants in a cluster also increases the level of competition for the local resources, negatively affecting the performance of firms (Braunerhjelm and Feldman, 2006).

Geographically clustered firms must cooperate while they compete (Mesquita, 2007). Institutional aspects, formal

organizations, such as trade associations and the presence or absence of social capital, may play a critical role in creating the right environment and then influencing the climate for cooperation in regional clusters (Holbrook and Wolfe, 2005). Entrepreneurship in cluster formation is important with respect to new products and approaches to new markets. It is well known that entrepreneurs with business experience are more likely to build a sustainable business in a cluster. The public policy support of this entrepreneurial behavior in clusters is an important element for successful clusters (Stam, 2009). However, Porter (1998) claims that this not means that clustered firms perform better than their non-clustered counterparts.

Based on this literature we propose:

P2. Clustered firms may exhibit higher levels of social network behaviour that non-clustered firms.

3. Methodology

3.1 Context of the study

As the topic of study is of international relevance the sample was taken from the emerging economy of Latin America. Specifically we analyzed firms and industries located in the southern regions of Chile in order to control for cultural, regional, and country economics environmental effects, while enabling the study of industry specificity based on the comparison of cluster vs non-clusters sectors.

As a way to validate the study, an analysis of the differences between clustered and non-clustered inter-firm interactions was conducted. The analysis involved the comparison of the judgments of the managing directors from firms belonging to three different industries in terms of their perceptions and inter-firm interaction behavior. In order to control for firms, which are not interested in inter-firm cooperation, we selected only respondents of firms from both types of industries that, prior to the detailed questioning, had declared that they had developed inter-firm co-operation in marketing activities.

For this study the regional industry sector selected as a cluster was the salmon industry. This industry has been defined as a strategic "cluster" for the current economic development and competitive strategy of Chile (Eyzaguirre, 2008). This industry sector consists of around 70 firms, 80 percent of which are located in the Los Lagos Region. The sector is export oriented, selling more than 95 percent of its production in foreign countries, the main export markets being the United States (37 percent), Japan (30 percent), the European Union (14 percent), Latin America (7 percent), and other markets (12 percent). Farmed salmon has become Chile's number two export after copper; external economies and strategic value chain links are present. Other characteristics are the importance of strong trade associations and public support (Felzensztein and Gimmon, 2007; Felzensztein et al., 2010).

The industries selected as non-clustered were the forestry and dairy industries. The forestry industry includes about 60 firms with only 30 percent of the firms exporting to international markets – mainly the Unites States. This industry creates 33,930 direct jobs and currently has an annual growth rate of 10.3 percent. In contrast, the dairy industry has undergone significant change over the last 30 years. A large number of artisan industries disappeared as multinational companies have been incorporated into the

industry. The products produced by 13 companies are responsible for 97 percent of the Chilean local consumption and export of dairy products.

The firms that participated in this study of non-clustered industries are located in similar regions in southern Chile, but without having either strong horizontal relationships or trade associations. As such, these two industry sectors do not comply with Porter's (1990) definition of a cluster. Previous studies conducted by Felzensztein and Gimmon (2008) showed low levels of inter-firm cooperation and trust in the forestry and dairy industries, confirming that these industries may not be considered as a cluster.

The present study is part of a larger research project, which included qualitative data on clusters and competitiveness (Felzensztein et al., 2010) and was carried out using primary data obtained through the application of a self-administrated questionnaire to managers from companies of the selected industry sectors registered in the 2008-2009 Chilean trade directory records. The questionnaire form is available upon request from the authors.

3.2 Measures

The constructs and questions for operationalization of this study were taken mainly from the "case study" research conducted by Brown and Bell (2001). With respect to the social network elements analyzed in our study, we followed Granovetter (1973); Morgan and Hunt (1994); Coviello et al. (2002); Coote et al. (2003); Coutler and Coutler (2003). Aiming to ensure validity, the questionnaire was reviewed by more than ten leading international academics. It was also pre-tested using suggestions from industry experts.

The perceived benefits of location (see Table I) was measured both in general and as they relate to cooperation in marketing activities. In both cases, these general assessments were made on a five-point Likert-type scale, where $1 =$ not at all useful and $5 =$ extremely useful. Cronbach's alphas were 0.79 and 0.81 respectively. Regarding specific perceptions related to cooperative marketing activities, we measured managers' perceptions of the usefulness of location for enabling specific activities. Assessments were made on a five-point Likert-type scale, where $1 =$ not at all useful and $5 =$ extremely useful. Cronbach's alphas were 0.84.

Regarding relational context (see Table II), we measured the relative value of contacts for creating formal and informal social networks, namely relationships with other business associates. Managers evaluated the importance of relationships with business associates for inter-firm cooperation using a five-point Likert-type scale where $1 =$ no importance and $5 =$ crucial.

In addition to the above and related to propositions 1 and 2, to better understand the differences in inter-firm cooperation between firms that are part of clustered industries and those that are part of non-clustered industries, we analyzed and compared three different aspects of inter-firm marketing cooperation (see Table III). First, we compared the differences in terms of the actors with whom firms cooperate in marketing activities. Second, we compared the type of marketing activities that firms engage in when cooperating. Finally, we compared the objectives pursued by firms by engaging in inter-firm collaboration in marketing.

Table I Comparison of managers' perspectives of marketing collaboration between clustered (C) and non-clustered (NC) industries

Variables	Group	Valid cases	Mean	SD	Mean diff. (C-NC)	Mann-Whitney U	Z
How useful is being located in a specific region of your country (regional cluster) for providing the following opportunities to your firm/ organization[a]:							
Greater local market demand	C	18	2.833	1.425	0.24	177.5	−0.574
	NC	22	2.591	1.368			
Greater international market demand	C	18	2.444	1.294	−0.14	206.0	−0.262
	NC	24	2.583	1.472			
New customers find your firm	C	17	3.059	1.391	0.27	180.5	−0.637
	NC	24	2.792	1.615			
Enhanced reputation or credibility of your firm and products	C	18	3.278	1.127	0.23	177.0	−0.591
	NC	22	3.045	1.362			
Finding new customers in new markets	C	18	2.611	1.195	0.20	178.0	−0.561
	NC	22	2.409	1.182			
Greater market and marketing information/knowledge	C	18	3.333	1.455	1.20	104,0	−2.618[**]
	NC	22	2.136	1.082			
Greater innovation and new product development	C	17	3.176	1.131	0.59	143.5	−1.646[*]
	NC	24	2.583	1.501			
Inter-cluster referrals to your firm	C	18	2.944	1.056	−0.10	197.5	−0.014
	NC	22	3.045	1.290			
Inter-cluster referrals from you to other firms	C	18	3.000	0.907	0.14	174.0	−0.690
	NC	22	2.864	1.283			
How useful is being located in a specific region of your country (regional cluster) for facilitating the following opportunities for co-operation in marketing with trade association[a]:							
Joint trade fair participation	C	17	3.765	1.251	0.76	111	−1.864[*]
	NC	20	3.000	1.214			
Joint marketing delegations	C	17	3.353	1.367	0.50	133.5	−1.177
	NC	20	2.850	1.040			
Joint trade missions to new markets	C	16	3.750	1.125	1.00	84	−2.504[**]
	NC	20	2.750	1.118			
Joint market information research	C	17	3.706	0.985	1.01	90	−2.518[**]
	NC	20	2.700	1.218			
Joint branding (co-branding)	C	17	2.294	1.213	-0.11	164	−0.192
	NC	20	2.400	1.314			
Joint sales to local markets	C	17	2.235	1.348	0.29	155.5	−0.468
	NC	20	1.950	0.945			
Joint sales to foreign markets	C	17	2.235	1.200	0.09	163	−0.231
	NC	20	2.150	1.226			
Joint distribution strategies	C	17	2.706	1.312	0.71	118.5	−1.646[*]
	NC	20	2.000	1.026			
Joint new product development	C	17	2.765	1.437	0.13	174.5	−0.369
	NC	22	2.636	1.177			

Notes: [*]$p < 0.05$; [**]$p < 0.01$; [***]$p < 0.001$ (one tailed); [a]1 = Not at all useful; 5 = Extremely useful; [b]1 = Strongly disagree; 5 = Strongly agree; [c]1 = No importance; 5 = Crucial

3.3 Sample characteristics

The initial sample contained 88 respondents, with 39 respondents from the cluster industry and 49 respondents from the non-clustered industries. Each respondent came from a different firm and all held managerial positions, with the majority (80 percent) holding the title of Commercial or Marketing Manager or more senior. Respondents had been with their companies for an average of five years.

An analysis of the basic characteristics of these two samples shown no significant differences in terms of the origin of the firms' capital (regional, national or foreign) and in terms of their size (measured in terms of number of employees).

We narrowed down the 88 respondents to 42, which represented only firms engaged in cooperation in marketing. This final sample consisted of 18 respondent managers from the clustered industry and 24 respondents from the non-clustered industries. Not all respondents answered all questions and were inconclusive in their answers to some questions. We found no conditional randomness for the missing responses hence we assess the missing data was random with a negligible impact of non-response bias.

Correlations between variables measured with the same method (and often self-report surveys) may be inflated due to the action of common method variance. We followed Podsakoff *et al.* (2003, p. 887) recommendation that "the

Table II Comparison of managers' perspectives of social networking for marketing collaboration between clustered (C) and non-clustered (NC) industries

Variables	Group	Valid cases	Mean	SD	Mean diff. (C-NC)	Mann-Whitney U	Z
When people from your organization (e.g. managing directors, marketing managers) meet (or if they expect to meet) with people from other firms to discuss about inter-firm co-operation in marketing, it is (or they will expect it to be)[b]:							
Mainly at a formal, business level	C	16	3.313	1.352	0.18	112.5	−0.303
	NC	15	3.133	1.506			
Mainly at a formal level, yet personalized via the use of technologies	C	15	3.333	0.976	−0.07	101.5	−0.472
	NC	15	3.400	1.549			
Mainly at an informal, social level	C	15	2.800	1.521	−0.13	105.5	−0.302
	NC	15	2.933	1.870			
Mainly at a formal and informal levels on a one to one basis	C	15	3.800	1.082	1.26	46.5	−2.441[**]
	NC	13	2.538	1.450			
At both a formal, business and informal, social level (but not in a one-to-one basis)	C	15	2.933	1.335	−0.23	122	−0.487
	NC	18	3.167	1.618			
For the one that you consider the most crucial source of advice for inter-firm collaboration in marketing, how important are the following features of the relationship?[c]:							
Trust	C	18	4.833	0.514	0.21	171	−1.541
	NC	24	4.625	0.576			
Respect reciprocity (i.e. give and take)	C	17	4.706	0.470	0.29	169	−1.088
	NC	24	4.417	0.776			
General business knowledge	C	18	4.333	0.686	0.21	197	−0.523
	NC	24	4.125	0.947			
Marketing knowledge	C	18	4.167	0.857	−0.12	193	−0.633
	NC	24	4.292	0.908			
Local knowledge	C	16	3.875	1.258	−0.08	175	−0.270
	NC	23	3.957	0.825			
International knowledge (e.g. about foreign markets)	C	18	4.111	1.183	0.24	179.5	−0.978
	NC	24	3.875	1.035			
Commercial acumen (business acumen)	C	18	4.056	0.802	0.79	131	−2.076[*]
	NC	23	3.261	1.251			
Length of relationship	C	18	4.056	0.873	1.35	76.5	−3.652[***]
	NC	24	2.708	1.083			
Personal or emotional support	C	18	2.944	1.211	0.32	182.5	−0.891
	NC	24	2.625	0.924			
Friendship	C	18	3.278	1.274	0.54	98.5	−1.357
	NC	15	2.733	1.100			
Collocation (close proximity in the geographical district/area)	C	18	2.944	1.474	−0.20	115	−0.427
	NC	14	3.143	1.292			

Notes: [*]$p < 0.05$; [**]$p < 0.01$; [***]$p < 0.001$ (one tailed); [a]1 = Not at all useful; 5 = Extremely useful; [b]1 = Strongly disagree; 5 = Strongly agree; [c]1 = No importance; 5 = Crucial

key to controlling method variance through procedural remedies is to identify what the measures of the predictor and criterion variables have in common and eliminate or minimize it through the design of the study". The categorization between clusters and non-clustered industries is based on the literature (see Porter, 1990, 2000) independent of the questions for operationalization of this study, which followed the research conducted by Brown and Bell (2001). Therefore, this study compares the two groups:
1 clustered; and
2 non-clustered industries.

Additionally, in order to select the appropriate procedure to test the differences between the perceptions and behaviors of managers from clustered and non-clustered industries, normality tests were conducted to determine if the values obtained from the participants' responses were normally distributed. The results of these tests (Kolmogorov-Smirnov and Shapiro-Wilk) revealed that most of the variables considered were not normally distributed for both groups. Therefore, the Mann-Whitney U non-parametric test for means comparisons was selected as the most appropriate way to compare the means between the previous mentioned groups. This test has been reported as considerably more efficient and robust than a t-test when sample distributions are far from normal (Conover, 1998).

4. Results

Results of the Mann-Whitney U non-parametric test for means comparisons between the two sampled groups are shown in Tables I-III. This analysis provides evidence of

Table III Comparison of managers' perspectives of other marketing collaboration issues between clustered (C) and non-clustered (NC) industries

Variables	Group	Valid cases	Mean	SD	Mean diff. (C-NC)	Mann-Whitney U	Z
If your firm develops any inter-firm co-operation in marketing activities, these are done[b]:							
Mainly with suppliers	C	15	3.267	1.486	0.65	79.0	− 0.887
	NC	13	2.615	1.895			
Mainly with buyers	C	14	3.500	1.653	1.36	50.0	− 2.282 *
	NC	14	2.143	1.292			
Mainly with one or more local producers	C	14	3.286	1.437	0.36	78.0	− 0.654
	NC	13	2.923	1.256			
Mainly with one or more non-local producer	C	14	2.714	1.684	0.25	85.0	− 0.304
	NC	13	2.462	1.266			
Mainly with one or more direct competitors	C	14	2.571	1.604	0.19	83.0	− 0.405
	NC	13	2.385	1.446			
With the trade association	C	15	3.600	1.454	1.14	61.0	− 1.750 *
	NC	13	2.462	1.761			
If your firm develops or expects to engage in inter-firm collaboration in marketing, the resources (people, time, money, etc) for the development of these joint marketing activities are invested (or would expected to be invested) in[b]:							
Joint product development	C	17	3.765	1.393	0.62	101.0	− 0.749
	NC	14	3.143	1.875			
Joint price strategy and planning	C	16	3.000	1.549	− 0.29	100.0	− 0.512
	NC	14	3.286	1.437			
Joint distribution activities	C	16	3.250	1.342	− 0.54	85.5	− 1.147
	NC	14	3.786	1.122			
Joint promotion strategy	C	17	4.412	0.795	0.55	79.0	− 1.700 *
	NC	14	3.857	0.949			
Co-branding	C	16	2.563	1.413	0.06	108.5	− 0.150
	NC	14	2.500	1.454			
Joint database technology and internet to improve communication with customers	C	17	3.353	3.765	1.14	60.5	− 2.381 **
	NC	14	2.214	0.975			
Establishing and building joint personal relationships with individuals customers	C	16	3.563	1.548	0.56	75.0	− 1.593
	NC	14	3.000	0.961			
Developing of firm's network relationships with markets(s) or wider marketing systems	C	16	3.750	1.342	0.75	61.0	− 1.957 *
	NC	13	3.000	0.913			
A combination of all the previous	C	13	3.308	1.316	0.81	25.5	− 1.214
	NC	6	2.500	1.517			
If your firm develops or expects to engage in inter-firm collaboration in marketing, the joint marketing activities with other firms/organizations are principally intended to (or would be expected to) be[b]:							
Attract new customers	C	18	4.444	0.922	− 0.31	121.0	− 1.025
	NC	16	4.750	0.577			
Increase sales in the short term	C	18	3.611	1.290	− 0.96	72.0	− 2.182 *
	NC	14	4.571	0.514			
Increase sales in the long term	C	18	4.611	0.608	0.18	105.5	− 0.899
	NC	14	4.429	0.646			
Retain existing customers	C	18	4.389	0.608	0.32	107.5	− 0.763
	NC	14	4.071	0.997			
Develop cooperative relationships with customers, suppliers and buyers	C	18	4.556	0.705	0.77	82.0	− 1.839 *
	NC	14	3.786	1.369			
Coordinate activities between the firm, customers, and other parties in the wider marketing system	C	18	4.500	0.707	1.63	72.5	− 3.788 ***
	NC	24	2.875	1.393			

Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$ (one tailed); [a]1 = Not at all useful; 5 = Extremely useful; [b]1: Strongly disagree; 5 = Strongly agree; [c]1 = No importance; 5 = Crucial

several significant differences between managers of clusters and managers of non-clustered industries.

In terms of the levels of inter-firm cooperation in marketing of clustered firms compared to non-clustered firms (see Table I), we found evidence of several significant differences. In terms of the perceptions about the usefulness of being located in a specific region of the country as a source of opportunities to their firm, results shown that respondents from the clustered industry perceive more benefits from its localization in a specific region in terms of the market/marketing knowledge availability ($M_C = 3.333$, $M_{NC} = 2.136$; $p < 0.01$) and in terms of opportunities for innovation and

new product development ($M_C = 3.176$, $M_{NC} = 2.583$; $p < 0.05$). Therefore, it seems that cooperation in these aspects is determined not only by co-location, but also enhanced by a cluster configuration of the industry.

In terms of the perceptions of the usefulness of being located in a specific region for facilitating the opportunities for cooperation in marketing with trade association, results show that respondents from the clustered industry have better perceptions of the usefulness of co-location. In particular, managers for the clustered industry have higher perceptions in terms of the benefits associated with co-operation with the trade association for joint trade fair participation ($M_C = 3.765$, $M_{NC} = 3.000$; $p < 0.05$), for joint trade missions to new markets ($M_C = 3.750$, $M_{NC} = 2.750$; $p < 0.01$), for joint market information research ($M_C = 3.706$, $M_{NC} = 2.700$; $p < 0.01$), and for joint distribution strategies ($M_C = 2.706$, $M_{NC} = 2.000$; $p < 0.05$). As it is possible to appreciate, these activities are all related to market analysis and entry, which are usually expensive activities. Therefore, co-operation with trade association in these activities is sometimes the only option for companies with scarce resources. Our results shown that in clustered industries this option is better utilized than in non-clustered industries. Therefore, proposition 1 is supported.

Regarding the social networking issues for marketing collaboration, we also found some interesting and significant differences (see Table II). First, and related to the social behavior of managers, it is interesting to note that, compared to managers from non-clustered industries, managers from the clustered industry have higher expectations of discussions about inter-firm cooperation in marketing between people from their organization and people from other firms. This would be conducted mainly at formal and informal levels on a one to one basis ($M_C = 3.800$, $M_{NC} = 2.538$; $p < 0.01$). Therefore, we can conclude that the development and use of personal relationships at both formal and informal levels are more frequent in clustered industries. In addition, managers from the clustered industry gave more importance to commercial acumen ($M_C = 4.056$, $M_{NC} = 3.261$; $p < 0.05$) and length of relationship ($M_C = 4.056$, $M_{NC} = 2.708$; $p < 0.001$) as important features of a crucial source of advice for inter-firm collaboration in marketing, providing evidence of the importance attributed to relationships and business trajectory as key features of potential collaborators in clustered industries. Therefore, proposition 2 is supported.

In terms of the other inter-firm co-operation issues studied, we found some interesting results (see Table III). First, and in terms of the partners selected to cooperate in marketing activities, we found that compared to managers from non-clustered industries, managers from the clustered industry rated cooperation with buyers ($M_C = 3.500$, $M_{NC} = 2.143$; $p < 0.05$) and with the trade association ($M_C = 3.600$, $M_{NC} = 2.462$; $p < 0.05$). Second, and with regard to the type of marketing cooperation, managers from the clustered industry acknowledged the benefits of developing marketing inter-firm collaboration in areas such as joint promotion strategy ($M_C = 4.412$, $M_{NC} = 3.857$; $p < 0.05$), joint database technology and internet to improve communication with customers ($M_C = 3.353$, $M_{NC} = 2.214$; $p < 0.01$), and the developing of firm's network relationships with markets or wider marketing systems ($M_C = 3.750$, $M_{NC} = 3.000$; $p < 0.05$). All of these results provide evidence of more collaboration associated with activities oriented to "reach" the market in clustered industries. Finally, considering the objectives of cooperation in marketing, and compared to managers from non-clustered industries, managers from the clustered industry declared to engage in inter-firm collaboration in marketing in order to develop cooperative relationships with customers, suppliers and buyers ($M_C = 5.556$, $M_{NC} = 3.786$; $p < 0.05$), and to coordinate activities between the firm, customers, and other parties in the wider marketing system ($M_C = 4.500$, $M_{NC} = 2.875$; $p < 0.001$), while managers from non-clustered industries declared to be more oriented to engage in inter-firm collaboration in marketing in order to increase sales in the short term ($M_C = 3.611$, $M_{NC} = 4.571$; $p < 0.05$). These results provide evidence of a greater emphasis on the industry development in the long term in collaboration activities between firms in the clustered industry, while firms in non-clustered industries are more narrowly focused, short term oriented, and tend to collaborate as a way to achieve particular goals.

5. Conclusions

The conceptual model depicting the propositions and major results of this study is illustrated in Figure 1. This study revealed significant differences in terms of inter-firm cooperation and social networking between clustered and non-clustered industries. The significant difference in managers' perception toward vertical relationships with buyers and external relationships with trade associations are possibly due to the different proportions of international markets between the clustered and the non-clustered industries, as well as the industry-cluster development stage and industry-cluster compliance of the salmon farming industry. Other significant differences such as joint database technology and coordinated activities are probably due to the distinction of clusters as described in the literature.

While at a first sight results may imply significant differences due to industries, we believe that the differences were because one industry really complied with the clusters definition (salmon farming), while the other two did not (forestry and dairy). Implications for practitioners can be clearly drawn from this research in support of clustering while recent studies (Jungwirth and Muller, 2010; Van Geenhuizen and Reyes-Gonzalez, 2007) were not unequivocal in this issue.

Figure 1 Conceptual model – comparison of managers' perceptions between clustered and non-clustered firms
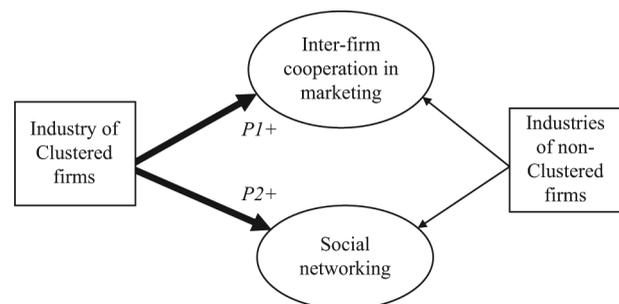
Note: *P1+* and *P2+* mean that both propositions are supported by this study

We call for establishing new clusters and promoting more regional cluster policies since clustering seems to provide better and positive inter-firm interaction followed by cooperation. This may result in more innovative marketing strategies at both local and international levels for firms located in clusters and competing globally. According to the findings of this study, we expect regional development bodies to foster more cooperation among firms and trade associations, while a new national and regional cluster strategy is implemented in many Latin-American and emerging economies. We suggest practitioners should not be wary of co-operation at both vertical and horizontal levels, since this should not diminish their firms' competitive advantage. On the contrary, co-operation through social networks may enhance firms' strengths. An additional implication for practitioners is related to trust. Though trust between firms in the same industry did not emerge from the results of this study as a significant difference between clustered and non-clustered firms (see Table II), "length of relationship" which implies trust, does show a highly significant difference. Practitioners should consider that pursuing a long-term relationship can be beneficial for inter-firm collaboration in marketing.

We conclude that in order to improve firms' strategic position, social networks should be leveraged to yield inter-firm cooperation in marketing. When the cultural environment or geographical distance inhibits social networks, managers should pursue inter-firm co-operation in order to benefit from marketing externalities. A managerial lesson for emerging countries is the urgent necessity to create new trade associations that represent SMEs. This will allow more social and informal interaction between firms, enhancing the possibility of further inter-firm co-operation.

Finally this study clearly contributes to a deeper understanding of the concepts of marketing factors in clusters, including the issues of cluster firms creating active marketing externalities, confirming that particular motivations and actions from companies co-located in regional clusters are needed for the development of successful inter-firm cooperation in marketing.

6. Limitations and further research

Our findings and conclusions have direct implications for both policy makers and researchers, making clear the idea that trade associations may help to facilitate inter-firm marketing cooperation in regional clusters. While our study of clustered vs non-clustered industries contribute to the literature with a unique perspective of industrial marketing management, we nonetheless acknowledge that generalizing from our small sample to other industry clusters and regional settings is potentially dangerous. Further research is needed to test our propositions with larger and more diverse samples of clustered vs non-clustered industries across a broader range of industries and countries outside of Latin America and Chile

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