Case study

The effects of co-location on marketing externalities in the salmon-farming industry

Christian Felzensztein
School of Business, Universidad Adolfo Ibáñez, Chile

Lars Huemer
BI-Norwegian School of Management, Norway, and

Eli Gimmon
Tel-Haïl Academic College, Israel

Abstract

Purpose – The purpose of this paper is to focus on the role of geographic co-location in the development of firm-level marketing externalities.

Design/methodology/approach – A mail survey and quantitative analysis were used to examine the effect of co-location on externalities. Fast growing salmon farming clusters in Scotland and Chile were chosen where most environmental variables could be controlled. These clusters enjoy business to business marketing practices.

Findings – Respondents indicated several externalities yielded by co-location such as buying intermediate goods, enhanced reputation and joint participation in trade fairs. However, other externalities such as providing access to new technology and referrals to other firms were only slightly indicated useful as produced by co-location.

Practical implications – Practitioners in the salmon farming industry are suggested to pursue inter-cluster cooperation.

Originality/value – While previous findings are conflicting, the contribution of this study within the limits of its sample is in differentiating the specific traditional and marketing externalities in which co-location is beneficial for clustered firms.

Keywords Geographic regions, Business-to-business marketing, Cluster analysis, Fish farming, Scotland, Chile

Paper type Case study

1. Introduction

This research is concerned with cooperative strategies among cluster-based firms, illustrated by the factors that influence the development of marketing externalities. Theorists have consistently demonstrated the role and importance of traditional externalities, which referred to production or economic externalities (Marshall, 1920; Krugman, 1991), such as knowledge spillovers, specialised labour pool and intermediate inputs, within industrial clusters. Krugman (1991) explained to concept of externalities as the external economies resulting from the interaction of firms’ decisions, where governments protect these firms as a group which bring down average costs of industries and enable firms to compete in external markets. Less research attention has been paid to the investigation of marketing based externalities and their influence on the competitive strategy of firms, though it has been suggested that these may also accrue from geographical agglomeration (Brown and Bell, 2001).

There seems to be some agreement in the literature that clusters provide general benefits to firms, especially in the value chain inputs as well as in the general aspects of the production process (Malmberg et al., 1996; Stopper, 1996; Olsen, 2002; MacKinnon et al., 2002, 2004). The benefits from cooperative strategies among firms have been a key research topic within the industrial marketing and purchasing group literature (Hakansson et al., 2006). Geographically clustered firms must cooperate while they also compete (Mesquita, 2007; Bengtsson and Kock, 2000). Some recent studies (Hervas-Oliver and Albors-Garrigos, 2007; Frisillo, 2007; Perry, 2007) found that co-location, being part of the unique set of cluster's resources, influence cluster's performance, to the extent that “clusters are not
automatically a win-win opportunity for all participants” (Perry, 2007, p. 21). However other previous studies found that the effect of co-location on performance may be less important than generally thought (Kahn and McDonough, 1997; Rafii, 1995). In their research of the effect of geographical proximity on new product development Ganesan et al. (2005, p. 46) argued that “to date, the cluster literature is largely silent on the relationship between geographical proximity and alternative modes of communication (such as fax, e-mail, and electronic discussion groups). Intuitively, there is no reason to expect that physical closeness should enhance these other forms of communication, because most of them have been developed to overcome physical distance”. However it is argued (Pels et al., 2004) that in less developed economies, compared to the USA or New Zealand, face-to face communication still holds in marketing practices. In light of the conflicting evidence in previous studies further research is needed. In respect to the effect of co-location on marketing externalities Brown and Bell (2001, p. 11) stated that “limited research exists to indicate the degree of impact that clustering has on marketing activities in a domestic and international context”.

This gap in the literature called for the following research objectives of this study:

- To build an understanding of the relationship between the issues related to regional clusters in regard to geographical co-location in developing inter-firm cooperation in marketing.
- To explore how and to what extent co-location influences inter-firm co-operation in marketing and what kind of externalities this generates.

In this study we deal with firm-to-firm relations that are categorized (Johannisson et al., 2002) as first-order embeddedness rather than second-order embeddedness (firm relations to social and economic institutions) or third-order embeddedness (indirect relations through institutions) while we focus on inter-cluster benefits.

The research question surrounding this study is related to what are the perceived benefits of co-location for marketing cooperation. To put it in another context, is geographical co-location the key issue for developing traditional and marketing externalities?

Following this introduction, the paper starts by reviewing the literature related to geographic co-location on the light of inter-firm cooperation in marketing. The research methods and industry selection is then presented, highlighting the relevance of this specific industry for this study in a comparative perspective between Scotland and Chile. Finally, results, discussion and conclusions are presented.

2. Theoretical perspectives on industrial clusters

Many economic geographers, economists, international business and strategy scholars have seen agglomeration economies theories as a starting point for contemporary academic research. However, the concept of agglomeration economies is far from recent. Traditional authors like Von Thünen (1842), and Marshall (1920) are noteworthy for their roles in the development of agglomeration economies theories. Marshall (1920) introduced the early concepts of co-partnerships, social elements of proximity and cooperation among industries. He combined the concepts of industrial districts, town development and marketing. This indicates that the “soft” elements of personal contact between traders, customers and producers, as well as the exchange of information, the circulation of new ideas and the diffusion of innovation (Bellandi, 1987, 2001), were one of the main ideas considered to be Marshall’s contribution to agglomeration theories. Marshall also introduced the concept of external economies[1] or externalities as the economies of scale benefits derived from industrial location. In other words, this explains that the economies of scale are not internal to the firm, but this occurrences lies outside its control, having a final impact of the firm’s internal production or performance (Brown and McNaughton, 2002).

It is clear that Marshall (1920) influences some of the ideas about marketing in industrial clusters introducing the concepts of “mutual discovery” as key advantage of co-location. Subsequently, Marshall and his work on industrial districts can be considered as the starting point for many conceptual considerations, of what has become be the broad concept and literature of clusters. Some authors (Martin and Sunley, 2002; Olsen, 2002) suggest that Marshall had little to say about how the process of industrial localisation actually starts, why it starts in certain places and not in others, or exactly what “local” meant. Many economic geographers and international business scholars nowadays still take Marshall’s work as the basis for the explanations of agglomeration economies and industrial districts (Parr et al., 2002).

Trust and linkages between firms are crucial in helping the diffusion of knowledge and cooperation. However, having companies from the same industry in one place is not likely to be enough (Malmberg and Maskell, 2002). Therefore, this is one of the key differences between the industrial district’s theory and the cluster approach (Porter, 1990), since the latter addresses the important strategic factors which promote innovation and trust, turning a cluster into the material basis of an innovation based economy (Asheim, 1996).

It is well known that there is not a unique definition for cluster. Porter (1990) defined clusters as a set of industries related horizontally and vertically having different kind of interactions ending with greater levels of productivity. However, Porter's theories do not fully explain why and how the first firms set up in a particular location. Taking this idea, Brown and McNaughton (2002) explain that in an initial catalyst for a cluster these may be an ‘accident of history’, but once it is established, the accumulative causation based on increasing returns and positive externalities, led to the attraction of new firms. Then, the concept of “lead firms” is the focal point for the initial cluster and network development (Martin, 1999).

After the first approach of Porter’s cluster definition, there have been many other attempts to explain this concept (see for example Swann and Prevezer (1996) and Rosenfeld (1997). Although clusters can be elastically attach to any geographical scale (Porter, 1990, 1998) it is important to distinguish clusters as a localized related organizations (Perry, 2007). More recently, “clusters” has been defined as “local or regional dimension of networks” (Van Dennerg et al., 2001, p. 187).

With a variety of definitions and contexts of clusters, yet there are some ambiguities in the concept, such as: how large is the “geographical area”? what is a “close proximity”? This issue tends to create confusion in the choice of a unit of analysis when more empirical research needs to be done in the
topic of industrial and regional clusters. Furthermore, the traditional transaction cost approach in the previous literature has largely ignored technological, informational and social inter-dependences, which can lead to better market-based externalities (Brown and McNaughton, 2002). Particular gaps in the literature of regional clusters lie in the omission or further analysis of “marketing externalities” and marketing related concepts.

3. Research methods and industry selection

A mail survey methodology was used to examine the effect of co-location on externalities. The questionnaires recipients were either general managers or marketing managers of their firms since they can oversee and assess the conditions in which they function (Kahn and McDonough, 1997). The mail survey was sent to the total population of companies involved in the main value chain activities of this industry ($n = 229$) in the two participant countries. After five months of follow-up process an effective 25 per cent response rate was achieved. Where possible existing measures for operationalising constructs employed in previous studies were used and adapted. The questionnaire was designed and set out in English (for the Scottish industry) and Spanish (for the Chilean industry). It was pre-tested by a group of ten worldwide academic experts and eight managing directors/practitioners from Scotland and Chile to assess clarity of instructions, style of the questionnaire, length and scale items. Finally, on the basis of their comments, modifications were made. Following Brown and Bell (2001) the usefulness of geographical co-location was measured on a five-point “Likert-type” scale, where $1 = $not at all useful and $5 = $extremely useful.

The salmon farming industry was chosen for this study for diverse reasons. First, it possesses similar characteristics in two countries with different levels of economic development and distinctive cultures, which is useful for controlling these environmental variables while focusing on geographical co-location. Second, obvious inter-connections in value chain activities which enable business-to-business marketing activities, combined with its geographical specificity, suggest that this industry constitutes an industrial district or cluster in both countries. Finally, the salmon farming industry is a fast growing industry (Hites et al., 2004) where Chile and Scotland were the second and third largest producers and exporters of farmed salmon during the time of this study[2] and together constructed the majority of the global salmon farming industry. In both Chile and Scotland there is substantial Norwegian involvement, not least through common ownership and technical resources.

Interestingly, there are some differences in the “cluster strategy” in Chile and Scotland. The former has a “bottom-up” approach, being led by the local companies with a minimum governmental intervention. The latter uses a clear “top-bottom” approach, being the industry an integral part of the Scottish Food and Drink Cluster, which is led by the developmental agency for Scotland: Scottish Enterprise. Collectively, these characteristics suggest that this industry sector can be usefully investigated for research on regional clusters.

The differences in response rate (33 per cent in Scotland and 20 per cent in Chile) may be linked to cultural, economic (structural) and organisational factors in the participant countries, as well as in the specificity of the aquaculture/ agriculture sectors. A high level of item response was found in the usable questionnaires, as well as a high internal consistency of the responses. The usable responses were analysed using SPSS.

4. Characteristics of the sample

4.1. Geographical location

The respondent companies are located in Scotland (30 firms, 56.6 per cent) and Chile (23 firms, 43.4 per cent). The majority of Scottish companies (63 per cent) are located in the northwest area, followed by Western Isles (26 per cent) and Shetland (10 per cent). In the case of Chile, most of the companies are located in Puerto Montt (52 per cent), followed by Chiloé (17 per cent), and with the remaining companies located in a wider area of southern Chile. This suggests a high density of companies located in specific areas, forming an industrial district or regional cluster in each country. It is important to state that the northwest of Scotland represents a geographical area which comprises cities (like Inverness), but also rural-remote areas (such as Lochinver in Sutherland, among others). In contrast, the city of Puerto Montt represents the fastest growing urban area in southern Chile. This differentiation has implications when analysing urban-rural firm’s behaviour differences (Acs, 2002; Steyaer and Katz, 2004). Close proximity in this industry sector may have a different meaning than “close proximity” in other industries, for example the high-technology sector. As such the regions and geographical areas explained in this research are only applicable to the specific industry under analysis.

The main sources of capital in company ownership are regional (58.5 per cent) and national (22.6 per cent). Only six companies (11.3 per cent) declared some foreign ownership and four companies (7.5 per cent) have a mixed capital base. The majority of companies (88.7 per cent) are not part of any multinational conglomerate and only six companies (11.3 per cent) declared to be a subsidiary of a MNE. This means that the sample comprises of a robust number of local embedded companies, with more than 80 per cent comprising local capitals (regional or national). This is an important dimension of the sample, as the industry is becoming more international and cross-border operations from multinational subsidiaries are becoming the trend. However, small firms have the challenge of transforming themselves into niche players, where marketing collaboration may be one of their competitive advantages for reaching both the local and the international markets.

The most competitive advantages for reaching both the local and the international markets.

The chi-square test was performed with the aim of detecting any significant differences between countries. A significant difference between countries was found for the sources of capital ($p = 0.025$), where Scotland was more
inclined to have companies with regional capital, in comparison with Chile where the number of respondent companies with regional, national and foreign capital are more alike. These results support the importance of foreign capital in the Chilean industry and suggest that issues of reinvestment policies from foreign companies (MNEs) at national and regional levels may be seen as key elements for the long-term development, growth and longevity of this industry in Chile. Furthermore, the relationship between subsidiaries and embedded local firms should be a key issue in the development, sustainability and balance between cooperation and competition in the industry.

4.2. Competitor’s characteristics

Nearly half of the respondent companies (45.3 per cent) considered that their major competitors are located in the same local area, compared with 30.2 per cent who reported that their competitors were located worldwide. This suggests that there is strong competition among companies that are geographically co-located. At the same time, global competition from companies located in other countries still remains an important issue in an industry in which the trend is global scale operations for achieving better economies of scale, as discussed in the industry chapter.

The size of the main competitors reveals that the major competitive threats are perceived to come from an undifferentiated mix of small, larger and MNEs subsidiaries (52.8 per cent). However, it is important to note that the larger firms with national capitals are also considered by 21 per cent of the respondents as key competitors. This implies that small companies are seeing larger companies, which usually have important economies of scale, as their main competition. A chi-square test was performed with the aim of detecting significant differences between countries with regards to competitor’s characteristics. No significant differences were found.

The local market, the EU, and the USA were the most important markets, in sales terms, for the respondent companies. The local market is more common for the Scottish firms in the sample, which seem to be less internationally oriented than Chilean firms. More than 80 per cent of Scottish firms sell their products in the local market, compared with 55 per cent of Chilean firms. This figure includes inter-firms sales to other firms. This demonstrates once again the importance of business-to-business transactions in this industry.

In summary, the final sample comprised a balance of 53 firms participating in the different aspects of the industry’s value chain activities. The profile also stresses the importance of small and medium size enterprises within the industry. Most of the firms are fully integrated, comprising the full range of value chain activities of the salmon farming industry, from hatchery, harvest, processing and sales to traders or distributors.

5. Research findings

This section discusses the results of a key question that this research investigates: whether geographical co-location is a determining factor in inter-firm cooperation in marketing? The results surrounding this enquiry includes the following:

- the usefulness of co-location for the creation of traditional externalities;

- the usefulness of co-location for developing active marketing externalities.

Overall, enhanced reputation or credibility of the firms and products, buying intermediate goods from other firms, providing access to better specialised suppliers, and finding new customers in new markets, are the main externalities that the respondent’s firms found more useful as benefits of geographical co-location. The “enhance reputation” and the “finding new customers in new markets” variables, correspond to a “passive marketing externality” that certain geographical places may create. The “buying intermediate goods” and “access to better specialised suppliers” are traditional economic externalities. These results confirm previous research in economic geography which specifies the importance of production related benefits that industrial districts and regional clusters can bring (see for example Becattini, 1990; Bellandi, 2001; Van Dennerg et al., 2001). Inter-firm transactions and the creation of economies of scale are the main benefits derived from geographical co-location. However, this research also shows that active marketing externalities are not the main benefits that simple geographical co-location brings to companies. As a result, other factors are needed to stimulate marketing cooperation, as it may be the case of social networks.

Table I shows that Chilean firms seem to appreciate greater benefits of agglomeration, with the exception of “access to a skilled labour”, “greater international market demand” and “enhance reputation or credibility of firms and products”. This may be because agglomeration is more obvious in the specific urban location of the industry in Chile, or it may be the case that there is a better perception of the benefits of the cluster. Significant differences were found between Scotland and Chile in the following factors: “selling intermediate goods to other firms”, “access to new technology”, “greater market knowledge”, “greater innovation/new product development” and “inter-cluster referrals to your firm”. Chilean companies were more likely to rank these factors as useful or extremely useful. Similarly, significant differences were found in “enhance reputation”, with Scottish companies being the ones that perceived it as more useful.

Exploratory factor analysis was performed with the purpose of gathering information about inter-relationships among the set of variables, and underlying dimensions, related to externalities. A summary of this analysis is presented in Table II and each dimension is explained below.

In the factor analysis four underlying factor dimensions (explaining 69.06 per cent of variance) emerge to capture the scope of statements pertaining to general economic externalities that geographical co-location brings to companies. The first factor is labelled as “expanding customer base” and it pertains to the statements about finding new customers at local and international levels, as well as, having greater market and marketing information knowledge. Greater international demand and enhanced reputation also influence this factor.

The second factor dimension is called “knowledge networking” and captures the statements about cluster referrals and innovation/new product development. Clearly this factor is related to active externalities, as it requires the active participation and sharing of information among managers of the clustered companies. Thereafter, networking (Davidsson and Honig, 2003), mutual
knowledge (Stopper, 1996; Wolfe, 2003) and leading-edge efforts may be the norm for a high score in this factor. The third factor dimension labelled as “increase resources” relates to the access to specialised suppliers, new technology and skilled labour pool. This dimension seems to be related to the most traditional externalities, described by Marshall (1920) and other authors (Krugman, 1991; Porter, 1998), which are the basis of the co-location related benefits. The final factor, “intermediating transactions”, incorporates the issues of buying and selling intermediate goods between companies. This means the use of industrial marketing and buyer-seller relationships (Baxter and Matear,

### Table I Externalities produced by co-location

<table>
<thead>
<tr>
<th>How useful is being located in a specific region of your country for providing the following opportunities to your firm/organisation</th>
<th>Scotland (%) out of 30 firms</th>
<th>Chile (%) out of 23 firms</th>
<th>Total (%) out of 53 firms</th>
<th>$\chi^2$</th>
<th>Mean</th>
<th>s.d.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traditional externalities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buying intermediate goods from other firms</td>
<td>41</td>
<td>61</td>
<td>50</td>
<td>3.508</td>
<td>3.08</td>
<td>1.33</td>
</tr>
<tr>
<td>Providing access to better specialised suppliers</td>
<td>28</td>
<td>52</td>
<td>39</td>
<td>3.289</td>
<td>2.90</td>
<td>1.38</td>
</tr>
<tr>
<td>Selling intermediate goods to other firms</td>
<td>14</td>
<td>57</td>
<td>33</td>
<td>12.037*</td>
<td>2.90</td>
<td>1.35</td>
</tr>
<tr>
<td>Access to a skilled labour pool</td>
<td>38</td>
<td>26</td>
<td>33</td>
<td>3.475</td>
<td>3.06</td>
<td>1.16</td>
</tr>
<tr>
<td>Providing access to new technology</td>
<td>10</td>
<td>44</td>
<td>25</td>
<td>7.556**</td>
<td>2.69</td>
<td>1.29</td>
</tr>
<tr>
<td><strong>Marketing externalities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhanced reputation or credibility of firm and products</td>
<td>66</td>
<td>35</td>
<td>52</td>
<td>4.966***</td>
<td>3.46</td>
<td>1.20</td>
</tr>
<tr>
<td>Finding new customers in new markets</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>0.071</td>
<td>2.85</td>
<td>1.26</td>
</tr>
<tr>
<td>Greater international market demand</td>
<td>41</td>
<td>22</td>
<td>33</td>
<td>2.332</td>
<td>2.60</td>
<td>1.45</td>
</tr>
<tr>
<td>New customers find your firm</td>
<td>24</td>
<td>44</td>
<td>33</td>
<td>2.470</td>
<td>2.67</td>
<td>1.40</td>
</tr>
<tr>
<td>Greater local market demand</td>
<td>28</td>
<td>35</td>
<td>31</td>
<td>0.601</td>
<td>2.50</td>
<td>1.50</td>
</tr>
<tr>
<td>Greater market and marketing information/knowledge</td>
<td>14</td>
<td>44</td>
<td>27</td>
<td>5.843***</td>
<td>2.73</td>
<td>1.30</td>
</tr>
<tr>
<td>Greater innovation and new product development</td>
<td>10</td>
<td>48</td>
<td>27</td>
<td>10.866*</td>
<td>2.81</td>
<td>1.17</td>
</tr>
<tr>
<td>Inter-cluster referrals to your firm</td>
<td>10</td>
<td>39</td>
<td>23</td>
<td>6.159***</td>
<td>2.67</td>
<td>1.10</td>
</tr>
<tr>
<td>Inter-cluster referrals from you to other firms</td>
<td>10</td>
<td>23</td>
<td>16</td>
<td>1.936</td>
<td>2.61</td>
<td>1.04</td>
</tr>
</tbody>
</table>

**Notes:** *significant at 1 per cent level; **significant at 5 per cent level; ***significant at 10 per cent level; Percentage of respondents answering 4 = “useful” and 5 = “extremely useful”

### Table II General externalities produced by co-location – rotated component matrix

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expanding customer base</td>
<td>Knowledge networking</td>
<td>Increase resources</td>
<td>Intermediating transactions</td>
</tr>
</tbody>
</table>
| Factors | $3.26^a$ | $2.68^a$ | $2.88^a$ | $2.98^a$
| | $5.25^b$ | $1.83^b$ | $1.33^b$ | $1.24^b$
| Mean | $\alpha = 0.79$ | $\alpha = 0.83$ | $\alpha = 0.82$ | $\alpha = 0.62$

**Notes:** $^a$ Composite mean; $^b$ Eigenvalue; Extraction method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 12 iterations; $\alpha =$ Cronbach alpha; Percentage of variance explained: 69.06
where geographical co-location may be seen as a key factor for this interaction. Furthermore, these transactions require the social interaction, mutual trust and knowledge of both parties interacting in a complex world of reciprocity.

It is important to note that the variables “enhance reputation” and “international market demand” were cross-loaded on both factors: “expanding customer base” and “increase resources”. This issue is possible to occur in exploratory factor analysis. However, further reliability analysis suggested that both items should be deleted in the factor “increase resources”. This further step allowed the achievement of a better reliability of the factor from 0.75 to 0.82.

All the previous factors, which present acceptable Cronbach alphas for exploratory analysis (Tabachnick and Fidell, 2001), may be used in future studies related to economic and marketing benefits that geographical co-location produce. This may allow further comparisons between different countries and industries using a single and reliable scale of measurement.

This factor analysis enables us to reduce the number of variables from 14 to 4; findings show that the factors “expanding customer base” (mean = 3.26; s.d. = 1.12) and “intermediating transactions” (mean = 2.98; s.d. = 1.13) are overall more important activities than “increase resources” (mean = 2.88; s.d. = 1.08) and “knowledge networking” (mean = 2.68; s.d. = 0.96) of which companies perceived to have benefit from geographical co-location.

Table III shows that “joint participation in trade fairs”, “joint market information research” and “joint marketing delegations” are the main marketing activities in which companies collaborate with other firms. Significant differences between countries were found in joint marketing delegations and joint new product development, with Chilean companies being the ones that tend to perceived more usefulness of geographical co-location for these kind of cooperation in marketing. This may be because agglomeration is more obvious in the specific urban location of the industry in Chile, or it may be the case that there is a better perception of the benefits of the cluster.

Apart from the above results and according to the respondents that developed some marketing cooperation with other firms, the main areas for collaboration have been: joint sales to customers (22.6 per cent) and joint distribution channels (20.8 per cent). It is interesting to note that “joint sales” and “joint distribution channels”, were not among the most perceived active marketing externalities that firms noticed as a benefit from geographical co-location. Cooperation occurs mainly with suppliers and buyers. These results show that it is easier and more feasible to establish inter-firm cooperation in marketing with buyers and suppliers than with more direct competitors. This also suggests that competition between companies located in the same stage of the value chain activities, is fierce in this industry. Clearly, buyer-selling relationships are the key components for the development of deeper collaboration and marketing understanding.

Exploratory factor analysis was performed with the purpose of gathering information about inter-relationships among the set of variables, and underlying dimensions, related to marketing cooperation with other firms. A summary of this analysis is presented in Table IV and each dimension is explained below.

In the factor analysis two underlying factor dimensions (explaining 74.08 per cent of variance) emerge to capture the scope of statements pertaining to marketing cooperation among firms in geographical clusters. The first factor is labelled as “marketing costs sharing” and it pertains to the statements about organisation and participation of trade mission, trade fairs in new markets, marketing delegations, as well as, having greater marketing information knowledge. In short, this factor shows that firms interact among themselves with the aim of achieving economies of scales in international marketing activities.

The second factor dimension is called “increasing sales” and captures the statements about sales in local and foreign markets, co-branding, new product development, and distribution strategies. Clearly this second factor sees marketing innovation among companies as part of increasing sales and gaining a better customer base. In this factor the variable “joint distribution strategies” presents the highest mean, which may explain its relative importance among this group.

The factor analysis shows that the number of variables can be reduced from nine to two. The factor called “marketing costs sharing” (mean = 2.98; with one-third or more precisely 34.5 per cent of the respondents answered it is “useful” or “extremely useful”) was found to be more important than the factor “increasing sales” (mean = 2.89 with only one-fifth i.e. 21 per cent) as having benefit from geographical co-location.

<table>
<thead>
<tr>
<th>Table III  Marketing cooperation with other firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>How useful is being located in a specific region of your country for facilitating the following opportunities for &quot;Co-operation in marketing:&quot;</td>
</tr>
<tr>
<td>Joint trade fairs participation</td>
</tr>
<tr>
<td>Joint market information research</td>
</tr>
<tr>
<td>Joint marketing delegations</td>
</tr>
<tr>
<td>Joint distribution strategies</td>
</tr>
<tr>
<td>Joint new product development</td>
</tr>
<tr>
<td>Joint trade missions to new markets</td>
</tr>
<tr>
<td>Joint sales to foreign markets</td>
</tr>
<tr>
<td>Joint branding (co-branding)</td>
</tr>
<tr>
<td>Joint sales to local markets</td>
</tr>
</tbody>
</table>

Notes: * significant at 5 per cent level; ** significant at 10 per cent level; Percentage of respondents answering 4 = “useful” and 5 = “extremely useful”
Table IV Marketing cooperation (with other firms) – pattern matrix

<table>
<thead>
<tr>
<th>Joint marketing delegations</th>
<th>Joint trade fair participation</th>
<th>Joint trade missions to new markets</th>
<th>Joint market information research</th>
<th>Joint sales to local markets</th>
<th>Joint sales to foreign markets</th>
<th>Joint branding (co-branding)</th>
<th>Joint new product development</th>
<th>Joint distribution strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.87</td>
<td>2.89</td>
<td>2.67</td>
<td>2.84</td>
<td>2.18</td>
<td>2.16</td>
<td>2.20</td>
<td>2.47</td>
</tr>
<tr>
<td>Factor 1 Marketing costs sharing</td>
<td>2.98a</td>
<td>2.89b</td>
<td>2.93b</td>
<td>2.84</td>
<td>2.18</td>
<td>2.16</td>
<td>2.20</td>
<td>2.47</td>
</tr>
<tr>
<td>Factor 2 Increasing sales</td>
<td>5.37b</td>
<td>1.29b</td>
<td>0.853</td>
<td>0.676</td>
<td>1.032</td>
<td>0.811</td>
<td>0.722</td>
<td>0.703</td>
</tr>
</tbody>
</table>

Notes: * Composite mean; β Eigenvalue; Extraction method: Principal component analysis. Rotation method: Promax with Kaiser normalization. Rotation converged in three iterations; α = Cronbach alpha; Percentage of variance explained: 74.08

6. Discussion

The analysis of traditional externalities showed that “buying intermediate goods from other firms” and “access to specialized suppliers” ranked in the first perceived benefits from geographical co-location. However, “selling intermediate goods to other firms”, “access to skilled labour pool”, and “providing access to new technology” were only slightly perceived as beneficial externalities. As of marketing externalities, “enhance reputation or credibility of firms and products” and “finding new customers in new markets” were perceived to be enhanced by co-location. These results differ partially from Brown and Bell’s (2001) study, conducted in an electronics cluster in New Zealand, who found that “access to labour pool” and “access to new technology” were the first perceived benefits of traditional externalities. As of marketing externalities they found that “inter-cluster referrals to other firms” and “innovation and new product development” were found to be the most beneficial. If this result is expanded to wider marketing activities, this may suggest that marketing externalities of regional clusters have an industry effect. This implies that the traditional benefits that geographical co-location brings are industry dependent. For example, “traditional aquaculture and agri-business” industries may look for different benefits in their location search, compared to technological based industries. In this specific case, it can be seen that intermediate buyer-seller transactions (Baxter and Matear, 2004) are crucial in this industry cluster. Thereafter, the industry specificity should be considered in the usefulness of geographical co-location in providing opportunities for marketing cooperation.

Industry dependence, along with other environmental factors such as culture, time and location may explain the conflicting results of previous research which concluded that the effect of co-location on performance may be less important than generally thought (Ganesan et al., 2005; Kahn and McDonough, 1997; Rafii, 1995). However the partial effect of co-location on marketing externalities as found in this study is substantiating previous studies (e.g. Hervas-Oliver and Albors-Garrigos, 2007; Perry, 2007; Brown and Bell, 2001) which found that co-location provides benefits to the clustered firms’ performance.

At more detailed multivariate levels, factor analysis was employed to group different externality variables. The results of this test showed that “expanding customer base” (mean = 3.26), which includes finding new customers at local and international levels, among others, and the factor “intermediating transactions” (mean = 2.98), which is related to buyers-sellers relationship, were the most important externalities perceived as useful from geographic co-location. The analysis also reveals that Chilean companies are the ones that found more useful these factors based on co-location. Factor analysis of the marketing cooperation variables demonstrated that among clustered companies some active marketing externalities are having special relevance, more of those related to marketing cost sharing than of those related to increasing sales. This may result from a lack of trust between the geographically clustered firms (Mesquita, 2007) who are reluctant to collaborate.

Chilean firms seem to apply more benefits than do the Scottish firms as of specific benefits of co-location. These results may suggest that Chilean companies perceive, or use more, the benefits that regional clusters bring. The results also imply more communication and direct transactions between Chilean companies located in specific urban locations, as in the case of Puerto Montt, where most of the producing (e.g. processing plants) and supplying firms (e.g. feeding and smolt suppliers) of this industry are located. These findings are in line with Pels et al. (2004) who found that in less developed economies like Argentina firms tend to have lower use of information technology in marketing and a greater emphasis on face-to-face interaction. Also significant differences between Chile and Scotland in the variable “inter-clusters referrals to your firm” suggests an active marketing externality from Chilean companies which, according to these results, tends to refer customer to other firms if they are unable to assist customers directly.

7. Conclusions

7.1. Theoretical implications
This study deals with the relative influences of geographical co-location in inter-firm cooperation in marketing activities.
Previous studies found conflicting evidence in regard to the influence of geographical co-location on clusters. The contribution of this study is in differentiating the specific traditional and marketing externalities in which co-location is beneficial for clustered firms, more specifically within the salmon farming industry. The results of this study have also suggested that cooperation is not an element per se in every organisation and that the effect of the country as well as the local culture of regions may play a crucial role in the cooperative process. Therefore, the particular regions, cities and urban/rural communities within countries, are crucial factors in the study of localised clusters (Acs, 2002; Steyaer and Katz, 2004).

A specific conceptual contribution to agglomeration economic theories of this paper confirms the importance of an industry in sharing a “common knowledge” of marketing (Brown and McNaughton, 2002). This is a specific active externality that can be taken further away in “localisation economies” (Malmberg et al., 1996), having stronger links between firms, institutions and specialised infrastructure within specific industries.

This study also contributed with the specification and deeper understanding of the concepts of “marketing factors” (Marshall, 1920), “marketing externalities” and “active marketing externalities” (Brown and Bell, 2001), confirming that particular motivations and actions from companies in a regional cluster are needed for the development of inter-firm cooperation in marketing.

Finally, this study has attempted to make a methodological contribution by undertaking a cross-national comparison in an under-researched industry in the context of marketing collaboration activities. In addition, the findings may be seen as a contribution for further enquiry into the role of entrepreneurial influences in the creation of active marketing externalities in clusters among different industries.

### 7.2. Managerial implications

The salmon farming industry studied has made a substantial contribution to the rural and regional economies of both Chile and Scotland. Since companies recognised the difficulties of discussing strategic topics such as marketing collaboration with competitors, the use of local face-to-face interaction between individuals is a key promoter in the discussion of strategic topics among managers. It is recommended to managers in co-located firms of the farming salmon industry to leverage the proximity to marketing externalities, while building trust (Mesquita, 2007; Frisillo, 2007; Bengtsson and Kock, 2000). The findings and conclusions are potentially useful to industrial marketing researchers and planners in aquaculture, and may be transferable to other industries and locations. Furthermore, the findings shed light on strategies for the enhancement of formal and informal social networks as a route to effective inter-firm cooperation in marketing, of particular value marketers in small-and-medium sized enterprises. They may also be of interest to public bodies for enhancing cooperative activities among local clustered firms.

### 7.3. Limitations and further research

A methodological limitation of this study is the data relying on the perceived evidence as espoused by respondents rather than on objective figures. Further research may be designed to compare between the managers’ espoused views and their firms’ actual figures. Also this study is limited to clusters in the salmon farming industry in two countries and additional studies of different industries and different countries are needed in order to generalize its conclusions. Also while inter-firm cooperation processes use more of electronic communications, further research is needed to investigate relational closeness (Ghemawat, 2001) as well as the strength of ties in industrial districts (Ganesan et al., 2005).

A continuing line of research may be necessary for future studies in these topic integrating theoretical perspectives from economic geography, sociology, strategy, entrepreneurship and marketing, giving a transdisciplinary perspective to industrial marketing and the regional clusters theory.

While it would have been interesting to explore in more depth the respondents in the sample by type of activity (e.g. food suppliers, hatcheries, harvest process, processing plants and re-processors), this was not possible as the questionnaire lacked identification by these types of activities. Indeed, given the vertical integration trends as well as mergers and acquisitions among complementary companies in this industry, it is becoming more difficult to identify the specific activities of individual firms in an exploratory research. The factor analysis performed in this study, which present good Cronbach alphas for exploratory analysis, may be of use in future confirmatory studies related to marketing cooperation between firms, and especially among competitor’s firms, in regional clusters. This would allow further comparisons between different countries and industries using a single and reliable scale of measurement.

### Notes

1. Economies that depend on the general development of the industry providing general benefits to individual firms (Marshall, 1920).
2. During 2006 Chile lead the ranking of production and exports world-wide.

### References


Further reading


Corresponding author

Christian Felzensztein can be contacted at: c.felzensztein@uai.cl