

## **Network Position and Tourism Firms' Co-branding Practice.**

Jarle Aarstad (1) Håvard Ness (2) Sven A. Haugland (3)

1. Bergen University College, Centre for Innovation, PO Box 7030, NO-5020 Bergen, Norway
2. Buskerud and Vestfold University College, School of Business and Faculty of Social Sciences, Norway
3. NHH Norwegian School of Economics, Department of Strategy and Management, Buskerud and Vestfold University College, School of Business and Faculty of Social Sciences, Norway

Accepted version of article in  
Journal of Business Research. 2015, 68 (8), 1667-1677.

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as  
doi: [10.1016/j.jbusres.2015.03.025](https://doi.org/10.1016/j.jbusres.2015.03.025)

This article is protected by copyright. All rights reserved.

# Network Position and Tourism Firms' Co-branding Practice

## Abstract

The branding of tourism destinations has received increased attention, with scholars typically focusing at the regional level or on the customer demand side. This study takes the firm as its level of analysis and explores whether interfirm network position is related to the use of the destination brand as an explicit marketing strategy. Firms' use of the destination brand can be described as a co-branding strategy. We apply an unusual combination of survey and social network data across several tourism destinations. The results show that firms with interfirm ties to other central firms in the extended network (closeness centrality) co-brand with the destination brand, but we do not find a similar effect for firms with ties in the local network (degree centrality). The use of instrumental variables indicates that closeness centrality is a cause, and not an effect, of co-branding.

*Keywords:* Destination branding, tourism destination, interfirm network, closeness centrality, degree centrality.

## 1. Introduction

Tourism destination branding, defined as “selecting a consistent element mix to identify and distinguish it through positive image building” (Cai, 2002, p. 722), has received

increased attention in the literature (Pike & Page, 2014). Research on the demand side has been concerned with customer perceptions of brand personality and image (Fyrberg, 2008; Hosany, Ekinci, & Uysal, 2006; Kneesel, Baloglu, & Millar, 2010), brand equity (Boo, Busser, & Baloglu, 2009; Konecnik & Gartner, 2007; Pike, Bianchi, Kerr, & Patti, 2010), and customer loyalty (Chen, 2010; Yoon & Uysal, 2005; Zhang, Fu, Cai, & Lu, 2014). On the supply side, contributions have focused on logo design (Hem & Iversen, 2004), brand management (Pechlaner, Raich, & Zehrer, 2007), and destination brand strategy at the local, regional, and national levels (Cai, 2002; Konecnik Ruzzier & de Chernatony, 2013; Niininen, Hosany, Ekinci, & Airey, 2007).

In addition, research has addressed stakeholder issues related to destination marketing and branding (García, Gómez, & Molina, 2012; Marzano & Scott, 2009; O'Connor, Flanagan, & Gilbert, 2008). The leveraging of a destination brand is typically facilitated by a destination marketing organization (DMO). It rests on the commitment and active support of local firms and other stakeholders (Balakrishnan, 2009; García et al., 2012; Pike, 2009; Pike & Page, 2014). Firms' internalization and use of the destination brand is important: it signals commitment, creates potential synergies, and transmits positive brand perceptions from employees to consumers.

However, despite the growing interest in tourism destination branding, surprisingly little research focuses on firms' co-branding practices in a destination context. Co-branding is defined as the pairing of two or more constituent brands (Park, Jun, & Shocker, 1996). In this paper, we study co-branding as the extent to which individual tourism firms actively use the destination brand in their own marketing. In Balakrishnan's (2009) extensive review of destination branding, the topic of co-branding, or brand alliances, is more or less absent. Furthermore, Pike's (2009, p. 860) review identifies nine research gaps, one of which concerns "the linkages and synergies in the development of strategies... between the DMO

and stakeholders.” Specifically, he states that “[t]here has been little attention given to the issue of the extent to which umbrella brand strategies are being implemented...” (p. 860). More recently, Pike and Page (2014, p. 212) assess the importance of destination firms in “harnessing their cooperation in collaboratively supporting the brand positioning required to communicate the brand identity,” where there is “a major research gap.” Moreover, Pike and Page (2014, p. 217) write that “future research will need to start assessing the synergies and critical relationships which exist between businesses and the DMO.” In a similar vein, Hanna and Rowley (2015, p. 100) assert that “limited attention has been directed towards place brand architecture or the wider management of the web of brands associated with a place.” Thus, tourism firms’ support and use of the destination brand as a co-branding strategy are considered highly important, yet vastly under-researched.

The destination marketing literature identifies stakeholder networks to be of particular interest. Wang and Xiang (2007, p. 82) suggest that networks serve “as the supporting mode of governance” during all stages of the collaborative destination marketing cycle. Similarly, Sheehan, Ritchie, and Hudson (2007, p. 73) call for an “examination of tourism stakeholder network relationships” to advance our understanding of destination marketing. Furthermore, Marzano (2008, p. 142) asks for a network analysis perspective to gain “an understanding of how the centrality of one or more stakeholders within the destination enhances or reduces the ability” of successful destination branding. Despite these shared ideas, empirical studies unpacking the roles of network relationships in destination branding remain exploratory and case-based.

We respond to these calls and take a supply-side perspective on destination branding. Specifically, we focus on individual tourism firms’ network position, and examine whether network position impacts the extent to which a firm supports the destination brand through co-branding. The paper contributes to the literature in several ways. First, the firm–destination

co-branding nexus is largely unexplored in empirical research. Given the importance of individual tourism firms' support and use of the destination brand for successful destination brand development, the study contributes new knowledge by identifying drivers promoting the adoption of the destination brand. Second, in line with recent calls in the literature, we go beyond the general idea of "networks as important." We adopt a structural perspective and compare the effect on co-branding of different network metrics of centrality. Third, the study makes methodological contributions by combining *survey* and *interfirm network* data from both *within* and *across* several tourism destinations. This enables us to explore how the interfirm network structure beyond a particular destination may influence firms' co-branding strategies. Finally, the study has managerial implications for DMOs and other stakeholder groups. By identifying important drivers of local firms' co-branding strategies, the study can provide managerial guidelines to direct DMOs and other stakeholder groups in how to develop effective destination branding strategies.

Below, we review the literature and develop a network perspective on co-branding. We develop two hypotheses related to individual firms' propensity to use a destination brand as a co-branding strategy. Next, we describe the procedures for data collection and data analysis before presenting the results. Finally, we discuss the findings, address the study's limitations, and suggest avenues for future research.

## **2. Theory and hypotheses**

### *2.1. The tourism destination context*

A tourism destination represents a "geographical, economic, and social unit consisting of all those firms, organizations, activities, areas and installations which are intended to serve

the specific needs” of the tourist (Flagestad & Hope, 2001, p. 449). Thus, destinations are coproducing networks, and from a customer’s point of view the service or “product” is provided by a multitude of independent agents or firms (Haugland, Ness, Grønseth, & Aarstad, 2011). A common theme in the destination branding literature is the need for interfirm collaboration to develop a destination brand. However, this may be much more challenging than for consumer goods because diverse businesses with different interests are involved (Pike, 2005, 2009). In addition, limited control between firms can hamper destination branding (Niininen et al., 2007; Pike & Page, 2014). Consequently, firms’ network relations become important (Ashton, 2014; Konecnik Ruzzier & de Chernatony, 2013) as regards whether they will “accept the brand and communicate it through their communication activities and products” (Bregoli, 2013, p. 215). This reasoning further motivates us to study whether the position of firms in the coproducing destination network impacts their use of the destination brand in their marketing strategy.

## 2.2. *Co-branding in a tourism context*

The generic co-branding literature focuses primarily on customer evaluations (cf. Park et al., 1996; Washburn, Till, & Priluck, 2000) and guidelines for developing co-branding strategies (Grossman, 1997; Leuthesser, Kohli, & Suri, 2003). Two primary effects of co-branding have been investigated. First, a transfer effect occurs when positive attributes of one brand are transferred to the other brand (Park et al., 1996). Second, a spillover effect occurs when co-branding creates positive attitudes towards the two individual partner brands (Simonin & Ruth, 1998). Co-branding synergies can be enhanced by brand compatibility based on relatedness, similarity (Dickinson & Barker, 2007), and complementarity (Leuthesser et al., 2003). Furthermore, Washburn et al. (2000) report that low-equity brands

can realize larger gains than high-equity brands, but the gain of high-equity brands is not reduced by co-branding with low-equity brands.

In a tourism context, the destination brand represents a collective good for individual firms (Balakrishnan, 2009; Marzano, 2008). As most tourism firms are small and often family-owned ventures (Pike & Page, 2014), the destination brand can be an important resource. Thus, firms that co-brand with the destination brand can benefit from a transfer effect and contribute to positive synergies. Pechlaner et al. (2007, p. 363) provide an illustrative example: “Americans, for instance, are not familiar with a single mountain in the Alps; what they perceive is simply the Alps. This makes it necessary for regional tourism enterprises and organisations to convey that they belong to the Alps as their destination brand and to position themselves by means of the brand the Alps.”

Niininen et al. (2007) describe how the branding process of Surrey Hills depended on engaging the local community in a partnership. Although the DMO has little control over firms’ use of the brand name, they find that the DMO restricted use of the logo by individual firms to approved purposes. Surrey Hills published guidelines for design elements, use of typeface, and design of promotional materials. Furthermore, Niininen et al. describe how local farmers make use of the destination brand to offer high-quality local food and maintain the landscape. García et al. (2012) compare different stakeholders’ perceptions of brand awareness, meaning, and equity. They conclude that local collaboration is very necessary in securing the quality perceived by visitors and their loyalty, because firms and employees transmit their values to the visitors. Consequently, “the key aspect on which DMOs have to work are the involvement and education of local people and the creation of co-branding agreements with entrepreneurs” (García et al., 2012, p. 657).

Recent co-branding studies, focusing on customer or demand-side effects, provide some interesting findings. Tasci and Guillet (2011), in an experimental study on hotel and

restaurant co-branding, find positive synergies for both parent brands. Tasci and Denizci (2010) find in a cross-sectional study that co-branding between hotels and retail brands can have positive synergies, but that brand familiarity is important for this outcome. However, the study involved hypothetical and nonexistent brands. Similarly, Dioko and So (2012) conducted a study involving a hypothetical scenario, finding that in the case of hotel and destination co-branding, the destination brand prevails as a key influence on consumer behavior. These studies are interesting as they indicate that both synergies and spillover effects can be realized through destination co-branding. Factors promoting such co-branding are nevertheless largely unexplored.

### 2.3. *Tourism firms in an interfirm network context*

We define a network as “a set of nodes and the set of ties representing some relationship, or lack of relationship, between the nodes” (Brass, Galaskiewicz, Greve, & Tsai, 2004, p. 795). In our context, a node represents a firm operating in the tourism industry, and a tie is an interfirm collaborative relationship. Based on the structural characteristics of firms’ network positions, a variety of metrics can be calculated. Following Marzano’s (2008) suggestion, we explore two network constructs: *degree* centrality and *closeness* centrality.

Degree centrality describes the extent of collaborative activities and the number of direct ties the focal firm has with other firms (Freeman, 1979; Nieminen, 1974). The more direct ties a firm maintains, the higher is its degree centrality. If firm A has relationships with B and C, and firm B has relationships with A, D, E, and F, firm B has greater degree centrality than firm A, indicating that firm B is more active in the network than A.

Closeness centrality measures a firm’s position in the *extended* network. It is the firm’s average network path length or “closeness” to reach all other firms in the network (Freeman, 1979; Wasserman & Faust, 1994). Closeness centrality can be exemplified as



follows. If firm A collaborates with firms B, C, and D, but these firms merely cooperate with a few other peripheral actors in the network, or they merely collaborate with each other within a local cluster, this implies that firm A will also tend to be peripheral in terms of path length to all other actors in the network. On the other hand, if firm A collaborates with E, F, and G, and these actors are well connected to other central actors throughout the network, this will increase firm A's closeness centrality.

Taken together, degree centrality describes the focal firm's direct relationships, i.e. primarily local intra-destination ties. We have already discussed the fact that a tourism destination provides a "total product" that is coproduced by multiple firms; thus, a firm's direct relationships are important. Furthermore, the strong assumption in the literature that local collaboration between stakeholders is important for developing a destination brand could be extended to individual firms' practice of co-branding. Closeness centrality describes a firm's connectivity beyond its direct ties in the "whole" network that also involve inter-destination ties. Networks are effective for the diffusion of work practices (Brass et al., 2004) that can even span geographical regions (Ness, Aarstad, Haugland, & Grønseth, 2014). It is, moreover, commonly held that information about market and industry trends provided through network connections may have implications for firms' strategies (Uzzi, 1997). Coining the concepts of degree and closeness centrality enables us to assess whether firm practices are adopted as a function of an interfirm network position that potentially spans the local sphere.

#### *2.4. Local network position and co-branding*

As noted, the more direct ties a firm maintains, the higher is its degree centrality. Firms having multiple network ties can accumulate a rich portfolio of resources, and degree centrality may impact firm performance (for a review, see Aarstad, 2012). But degree centrality may also impact a firm's use of the destination brand, we will argue. Given the

importance of collaborative relationships at the local destination in relation to destination branding, we assume that as a firm's number of collaborative ties increases, the greater will be its propensity to co-brand with the destination brand. The more active a firm is in the local network, the more likely it is to understand itself as part of an interdependent coproducing destination network. Thus, they are more likely to realize their dependence on the destination brand. Another related argument is based on the idea that the more active a firm is in the network, the more exposed it will be to other firms' co-branding practices, and hence likely to adopt similar branding behavior. It has been argued that interfirm relations are a key governance structure throughout the destination branding process (Wang & Xiang, 2007); thus, degree centrality should be expected to play an important role in individual firms' use of the destination brand. We therefore conclude and hypothesize:

Hypothesis 1. There is a positive association between a firm's degree centrality in the interfirm network and its use of the destination brand as a co-branding strategy.

### 2.5 *Extended network position and co-branding*

We will now discuss the impact of an extended network position in terms of closeness centrality on firms' use of the destination brand. First, collaboration with other firms that are well connected throughout the network implies that the firm can tap into a richer pool of resources than would otherwise be the case. Well-connected firms can act as catalysts for information sharing and become transmitters of interfirm learning. Research indicates that co-branding can be a source of positive synergies in a destination context (Dioko & So, 2012; Niininen et al., 2007; Tasci & Guillet, 2011), and it is likely that these central firms in the extended network are more aware of this knowledge than less central firms. Second, because closeness centrality brings richer information from an extended network that may span local

destinations, it is likely to expose the focal firm to other destinations' co-branding strategies, which can induce imitative behavior. In a study focusing on network ties connecting destinations, Ness et al. (2014) find that different kinds of ties provide complementary information about efficient work practices that spur local change. Thus, the higher the closeness centrality, the more likely a firm is to receive information about other firms' co-branding strategies that could cause imitation or even spur innovative co-branding practices. Finally, a firm may be central and well connected throughout the network as a function of being a highly professional actor. Compared with less professional counterparts, highly professional actors should be expected to have a larger and wider network, as they should be considered more attractive partners. Closeness centrality may thus indicate a firm's level of professionalism. Professionalism in turn may increase a firm's proactive attitude in using the destination brand in a co-branding strategy. We therefore conclude and hypothesize:

Hypothesis 2. There is a positive association between a firm's closeness centrality in the interfirm network and its use of the destination brand as a co-branding strategy.

Social network research has been concerned with various structural metrics to understand network members' position and centrality. For instance, a network position rich in structural holes is associated with access to non-redundant information. The concept of structural holes has received much attention in innovation studies (e.g. Rodan, 2010). However, we cannot find substantial arguments for why it should have a genuine effect on co-branding. We will nonetheless control for this issue. In addition, we control for betweenness centrality (Freeman, 1979), which is similar to structural holes in connotation (J. Scott, 2000). Coleman's (1988) concept of network closure is antonymous to structural holes in

connotation (Ahuja, 2000). Controlling for structural holes accordingly also takes account of the potential effect of network closure or structural embeddedness (Gulati, 1998).

### **3. Research context and data collection**

As empirical context, we selected nine winter sports destinations in southern and eastern Norway: Beitostølen, Geilo, Gol, Hemsedal, Hovden, Rauland, Rjukan, Trysil, and Vrådal. Each of these local destinations has its own brand and logo, a common Webpage, and a DMO. We identified all firms at each destination by first checking the Brønnøysund Register Centre, a government body under the Norwegian Ministry of Trade and Industry. We then deleted firms that were obviously irrelevant to the study (e.g. one-person firms or firms that were no longer in operation), cross-checked the identified firms with the Websites of the nine destinations, and finally asked well-informed local representatives to review our lists of firms. We identified a total of 568 firms at the nine destinations. The firms represent various types of actors operating at winter sports destinations, such as transport firms, accommodation providers, restaurants, activity and service providers, museums, shopping and entertainment venues.

#### *3.1. Interfirm network data within and across destinations*

We collected interfirm network data via telephone interviews. The managers were asked to identify firms with which they had currently or previously cooperated. The total number of interviews was 202, and the overall response rate was 35.6%.

We asked for information about collaboration with other firms, both within and beyond their own destination. We call this latter type of collaboration an inter-destination tie. Inter-destination ties can be classified into two separate groups: 1) direct ties between firms located at different destinations, and 2) ties between firms and regional, national, or international organizations that are not located at a specific destination. Thus, different destinations can be directly connected through type 1 ties and indirectly connected through type 2 ties, where firms at different destinations have direct ties to the same regional, national, or international organizations not located at any specific destination.

We model a structural relation between firms  $i$  and  $j$  if one or both firms report that collaboration exists or has existed. This enables us to model network data to firms that were not sampled (cf. type 2 inter-destination ties) and to nonrespondent firms in the network sample. The network consists of 550 firms (nodes) that are connected by 2,686 interfirm ties (see Figure 1).

<<< Insert Figure 1 about here >>>

### 3.2. *Survey data*

About one year later, survey data were collected using an electronic questionnaire targeting the same 568 firms. Initially, all sampled firms were called and asked for their participation in the survey. Consent to participate was obtained from 325 firms, which then received an e-mail with a link to the electronic questionnaire. After two reminders, we received 72 usable responses. We had the names of all firms in the network and the survey

data, which enabled us to merge data for “matching” firms. Merging the survey data with the nodes of the network data resulted in complete network and survey data from 63 firms.

### 3.3. *Measures*

The *dependent* variable, co-branding, was measured by three items, reflecting a firm’s use of the local destination brand (Table 1). We used a seven-point Likert-type rating scale anchored by “strongly disagree” and “strongly agree.” Because we could not find previously tested scales measuring this type of co-branding, the items were developed for this study in line with Churchill’s (1979) suggestion that items should be generated based on the domain of the construct. Furthermore, Reve, Haugland, and Grønhaug’s (1995) study of export companies inspired two items. Their study includes two items reflecting the importance of a company’s brand and reputation for international marketing and sales. We modified these items to reflect the importance of the destination’s brand and reputation in the firm’s own marketing and sales.

Table 1 specifies how the *independent* variables, degree and closeness centrality, were measured (for further details, see Freeman, 1979; Wasserman & Faust, 1994, pp. 183-188). Co-branding was measured using survey data, and degree and closeness centrality were measured using network data and modeled by the network program Ucinet 6.135 (Borgatti, Everett, & Freeman, 2002).

We included the following *control* variables: innovation, imitation, uncertainty, and firm size. With reference to arguments presented above, we also control for structural holes and betweenness centrality. The measures are reported in Table 1. It is well described in the literature that innovation and imitation strategies may be associated with networking patterns (Garcia-Pont & Nohria, 2002; Powell, Koput, & Smith-Doerr, 1996), and we included these as control variables to isolate the potential effects of degree and closeness centrality on firms’

co-branding strategies. Uncertainty can be a proxy for firms operating in different market segments, causing them to act in different ways (Beckman, Haunschild, & Phillips, 2004). Firm size may be associated with professionalism, and larger firms have more resources and greater capability to participate in extensive interfirm networking.

Innovation was measured by two items reflecting the firm's ability compared to its competitors to be first to the market with new products and services (adapted from Deshpande, Farley, & Webster, 1993; Sandvik & Sandvik, 2003), and to produce and supply products and services in better and more efficient ways (developed for this study). Imitation was measured by two items reflecting the use of other firms as role models for developing high-quality products and services, and for implementing efficient routines and operating processes. These items are based on the theoretical discussion by (Haunschild & Miner, 1997) and developed for this study in line with Churchill's (1979) suggestions. Uncertainty was measured by two items reflecting rapid changes in end users' needs and preferences (adopted from Jaworski & Kohli, 1993; Selnes & Sallis, 2003), and demand volatility for the firm's products (adapted from Buvik & John, 2000; Ganesan, 1994; Heide & John, 1990). These three control variables were measured by seven-point Likert-type rating scales anchored by "strongly disagree" and "strongly agree." Firm size was measured by the number of employees. These four control variables were measured using survey data.

Structural holes were measured as network constraint, which analyzes the extent to which a firm has network ties to other firms that are *not* connected to each other (for further details, see Burt, 1992, p. 55; Burt, 2004). Betweenness centrality measures a firm's importance or control of information or resources in a network (for a formal definition and further details, see Freeman, 1979). These two control variables were measured by the network data and modeled using Ucinet 6.135 software (Borgatti et al., 2002).

<<< Insert Table 1 about here >>>

Survey and network data were collected independently through different procedures. Consequently, this combination of methodologies is unusual and strengthens the study's validity by reducing problems related to common method variance (Lindell & Whitney, 2001; Malhotra, Kim, & Patil, 2006).

## **4. Results**

### *4.1. Measurement model*

Firm size (number of employees), degree centrality, structural holes (network constraint), and betweenness deviated from normal distributions, and we applied Van der Waerden's (1953) method to correct for this. Next, we tested the measurement model via the structural equation modeling (SEM) technique of partial least squares (PLS), using the PLS-PM (path modeling) XLSTAT module. Table 2 reports that all factor loadings are .90 or higher, and all items load higher on their own construct than on any other construct. Table 3 reports that Cronbach's (1951) alpha values are above .80, composite reliability (CR) values are above .90, and average variance extracted (AVE) values are above .80. All squared correlations among the constructs are lower than the corresponding AVE for each construct (cf. Fornell & Larcker, 1981).

<<< Insert Tables 2 and 3 about here >>>

Because the dependent variable, co-branding, was developed for this study, we should be particularly concerned with its reliability and validity. We note from Table 2 that all factor loadings are .90 or higher, and all cross-loadings are substantially lower. Furthermore, Table 3



shows that co-branding has the highest Cronbach's alpha value, the highest composite reliability (CR), and the second-highest average variance extracted (AVE). In addition, all squared correlations among co-branding and other constructs are substantially lower than the AVE for co-branding. We thus conclude that the measurement model, including co-branding, shows satisfactory reliability and validity (cf. Bollen, 1989; Bollen & Lennox, 1991).

#### *4.2. Descriptive statistics*

Table 4 presents descriptive statistics. Co-branding, innovation, imitation, and uncertainty are calculated based on average composites of the constructs. We observe that uncertainty and imitation are correlated. This may indicate that firms seek to decrease uncertainty by imitating other firms. We also observe that imitation is weakly correlated with degree centrality. This may indicate that imitating firms pursue such a strategy by seeking information from numerous other firms. Interestingly, imitating firms tend to be innovative, indicating that such strategies are complementary rather than substitutes for each other. We also observe that large firms tend to be more connected in the interfirm network than smaller firms. Finally, we note that all four network variables (degree centrality, closeness centrality, structural holes, and betweenness centrality) are correlated. Below, we explain how we address this issue to avoid potential multicollinearity problems.

<<< Insert Table 4 about here >>>

### 4.3. Hypothesis testing

We have survey data from eight destinations. In a number of models, we therefore apply multilevel linear regression analyses to take account of potential interdependency between firms located at the same destination. Analyses were conducted using the Stata 13.1 software (StataCorp., 2013). In Model 1 of Table 5, we test whether firms' localization at a particular destination is associated with co-branding, but we observe that the destination effect is low and insignificant (likelihood ratio  $\chi^2 = .07$ , n.s.). Model 2 includes the control variables innovation, imitation, uncertainty, and firm size, but none of these is significantly associated with co-branding. We test Hypothesis 1 (H1) in Model 3 and Hypothesis 2 (H2) in Model 4. Both hypotheses receive empirical support, but the effect is stronger for H2 than for H1. Testing the hypotheses simultaneously in Model 5, we observe that H2 gains empirical support, whereas H1 is rejected. Because none of the control variables included so far has a significant effect on co-branding, we omit them from Model 6. H2 still receives strong empirical support, whereas H1 is rejected. In Model 7, we report closeness centrality as the only independent variable, and the effect size is consistent with previously reported models.

<<< Insert Table 5 about here >>>

It is unsurprising that the more interfirm ties a firm spans in the local network, the more central the firm tends to be in the extended network (e.g. the high correlation between degree centrality and closeness centrality shown in Table 4). Testing the hypotheses simultaneously shows that being active in the local network per se is not associated with co-branding. However, we cannot rule out other network explanations for firms' co-branding strategies, so we control for structural holes and betweenness centrality in Models 8 and 9, respectively. Again, we observe that closeness centrality is the only variable having a genuine

association with co-branding in these models. The fact that structural holes is not a predictor of co-branding is particularly interesting, because the concept of network closure (Coleman, 1988) (which is *not* to be confused with closeness) is in fact antonymous with structural holes in connotation (Ahuja, 2000). The absent effect of structural holes accordingly rules out network closure or structural embeddedness (Gulati, 1998) as predictors of co-branding. This further indicates that co-branding is *not* a function of an embedded local structure, but is rather a function of the spanning of extended “far reaching” network ties beyond a local context.

Because of potential multicollinearity problems, we are constrained from simultaneously including structural holes and betweenness centrality with numerous other independent variables, but a stepwise forward regression analysis, conducted using SAS/JMP 10, only returns closeness among the eight candidate variables as a significant predictor of co-branding. This analysis used ordinary least squares regression, which does not take account of a potential destination effect, but Table 5 shows that this effect is absent in all reported models apart from Model 4, where it is borderline significant. The variance inflation factors (VIFs) are 2.59, 3.02, and 3.77 with reference to Models 6, 8, and 9, respectively, which are below the suggested critical values varying between 4 and 10 (for a discussion of these values, see O'Brien, 2007). This indicates that multicollinearity is not a problem in these models. We estimated the VIFs in Stata 13.1 on ordinary least squares estimates, because the option is not available for multilevel estimates.

Since we cannot find any destination effect (except for the borderline effect in Model 4), we omit this parameter and re-estimate closeness centrality as the independent variable on co-branding in Model 10. The estimate is similar to that of ordinary least squares regression, and we observe that the effect size is consistent with previously reported estimates.

#### 4.4. Further estimations with instrumental variables

While the analyses reported in Table 5 cannot exclude the possibility of a potential reverse causal relationship, the appropriate use of instrumental variables can enable us to assess whether closeness centrality is a cause of co-branding. The properties of valid instrumental variables are that they are correlated with the independent variable, but uncorrelated with error term (see Wooldridge, 2006, pp. 510-541). Table 4 shows that degree centrality and firm size are correlated with closeness centrality. This makes them eligible as candidates for instrumental variables.

We report estimations with instrumental variables in Table 6, conducted using Stata 13.1. The first-stage regression, reported in the lower part of Model 1, shows that the partial effect of degree centrality and firm size on closeness centrality returns a significant F value of 47.73, which is higher than the suggested critical value of 10 (Stock, Wright, & Yogo, 2002). Hansen's (1982) *J* Chi-square, also reported in Model 1, tests whether the instruments are correlated with the error term (i.e. testing for overidentifying restrictions). The insignificant p value shows that the instruments are uncorrelated with the error term and are accordingly valid (a p value close to .80 is a robust measure). Taken together, these estimates indicate that degree centrality and firm size are valid instrumental variables.

<<< Insert Table 6 about here >>>

The GMM (generalized method of moments) estimator developed by Hansen (1982) is well suited to estimations using instrumental variables, and the method can report standard errors that are robust to heteroskedasticity. The upper part of Model 1 in Table 6 shows the results of a GMM estimation where degree centrality and firm size are instruments and

closeness centrality is instrumented. The result is significantly robust, and the estimate is not much lower than the values reported in Table 5.

Although Table 5 indicates that firms' co-branding strategies are independent of destination localization, we replicate the analyses (from Model 1) in Model 2, but applying an additional restriction on the possible clustering effects of firms located at the same destination. However, the results reported in Model 2 deviate only marginally from those of Model 1. Taking these results together, we conclude that closeness centrality is a cause, and not an effect of co-branding.

#### *4.5. In-sample and out-of-sample comparisons*

For this study, we combined survey and network data from 63 firms, but we have network data from a total of 550 firms. In Table 7, we therefore report in-sample and out-of-sample comparisons, with reference to the regression estimate in Model 10 in Table 5. Analyses were conducted using Stata 13.1. The de-facto co-branding numbers from the in-sample are the "real" values. The estimated in-sample values indicate how co-branding corresponds to the regressed values (i.e. regressing co-branding on the de-facto in-sample closeness values). Intuitively, the estimated co-branding effect with reference to the in-sample has a higher minimum value, a lower maximum value, and a lower standard deviation (SD) than the de-facto in-sample co-branding values.

<<< Insert Table 7 about here >>>

For the out-of-sample analyses, we "transfer" the in-sample co-branding estimates to firms that were not sampled or connected with the survey data, but were part of the network data (we "transfer" the in-sample co-branding estimates with reference to out-of-sample

firms' de-facto closeness centrality). We observe that out-of-sample co-branding estimates have lower minimum values and higher maximum values than in-sample co-branding estimates as a result of corresponding values for out-of-sample de-facto closeness centrality. Therefore, the standard deviation is also higher for out-of-sample firms. The mean value for out-of-sample firms is somewhat lower than that for in-sample firms.

Lower minimum values and mean values may be the result of including firms in the network data by reference to other firms when gathering network data (as reported in the section on research context and data collection). Regarding higher maximum value, we find through inspection of the raw data that this resembles type 2 network ties, in which respondents have reported links to regional, national, or international organizations not located at any specific destination. In our opinion, it is not relevant to directly compare destination firms' co-branding strategies with those of such organizations.

Taken together, we therefore conclude that the observed differences between in-sample and out-of-sample results are logical and explainable, and that the results with reference to in-sample firms are relevant for drawing conclusions from our hypothesis tests. However, by the same token, we should be cautious about drawing too definite conclusions and about generalizing the results beyond the observed range of closeness centrality for the in-sample firms.

## **5. Discussion and implications**

### *5.1. Discussion of the results*

This study shows that closeness centrality is related to individual tourism firms' use of the destination brand as an explicit marketing strategy. However, degree centrality has no genuine effect. In other words, merely collaborating with local firms at a particular destination, at the expense of extensive network ties beyond the geographical area, does not

have any effect on co-branding. On the other hand, ties to other central firms in the wider network are positively associated with firms' use of the destination brand in their marketing strategy. This is an interesting finding, as it suggests that firms that have relationships with firms at other destinations, and relationships with regional, national, or international organizations, are most prone to co-brand. One reason for this may be that firms with strong local ties have a strong focus on activities within the destination, for example, cooperation and competition between firms at the destination, and less focus on how the destination is positioned in the wider environment. Such firms may not realize the value of co-branding destination and firm. Firms with ties beyond their local network may be more exposed to strategies and practices at other destinations, and therefore have a better understanding of how their own destination is positioned within a larger competitive environment. This may enable them to realize the benefits of co-branding, and furthermore, to adopt co-branding practices observed at other destinations.

## 5.2. *Theoretical implications*

Most studies of co-branding have focused on demand-side issues, exploring how firms can realize benefits by combining their brands and examining how co-branding impacts brand equity, customer perceptions, preferences, and choice (cf. Park et al., 1996; Washburn et al., 2000). Research on supply-side issues has primarily been concerned with how destinations can develop and implement branding strategies, which is related to stakeholder *management* (cf. Balakrishnan, 2009; Pike & Page, 2014). The literature has strongly suggested that destination marketing and branding is dependent on collaborative relationships and stakeholder involvement. Furthermore, (stakeholder) networks have been suggested as a key area for further inquiry. In particular, we contribute to this literature by unpacking the idea that networks matter. We address two key structural network metrics as core candidates for

explaining co-branding, and test the effects of the variables in a real-world co-branding context. By controlling for other key network metrics, as well as firm characteristics, we also address concerns related to alternative explanations. Thus, this study explores tourism firms' de-facto use of the destination brand in their own marketing strategies, and addresses stakeholder *practice*. By, focusing on tourism firms' position in the interfirm network, we contribute to the growing interest in the supply side and stakeholder issues in the destination branding literature.

The study has theoretical implications for both the destination branding and co-branding literature. The study shows that a firm's position in the extended network impacts the likelihood of co-branding. In this respect, our study has revealed an important factor in the enhanced use of the destination brand along with the firm's own brand. Thus, the firm's network position plays a unique and independent role in developing a co-branding strategy. This underscores the importance of understanding network relationships both *within* and *across* destinations for successful destination branding. The literature review indicates the importance of local cooperative relationships in the development of a destination brand. However, the effect of local cooperative relationships is not found in relation to firms' use of co-branding strategies in this study. On the other hand, co-branding seems to benefit from an extended reach in a wider network context.

The co-branding literature has primarily been concerned with combining the brands of individual firms. The type of co-branding studied here emphasizes the brand of a particular geographical location, that is, the tourism destination. The study thus represents an extension of the traditional co-branding perspective. This type of co-branding is also relevant in other contexts, for example, food products produced within specific geographical areas, firms located within specific industrial clusters, or other forms of umbrella branding. Co-branding can be a source of advantage for both firms and locations, but research on this type of co-



branding is still in its infancy. Such co-branding research requires different theoretical approaches as compared to the consumer behavior perspective and the demand-side focus commonly used in co-branding studies. In this respect, network and interfirm perspectives can be useful alternative and complementary theoretical perspectives that enhance our knowledge of supply-side issues.

### 5.3. *Managerial implications*

From a managerial point of view, the results imply that destinations seeking to improve their firms' use of the destination brand as an explicit marketing strategy should encourage the firms to extend network ties to other central actors that can reach out to "all" firms in the network in few geodesic steps. Examples of such organizations relevant to the Norwegian tourism industry are Innovation Norway (a governmental body for innovation and development of enterprises and industries), Color Line (Norway's largest and one of Europe's leading cruise and transport companies), the Norwegian Hospitality Association (with 2,300 member businesses), and hotel chains with strong brands. What these have in common is that they are large or highly professionalized organizations that collaborate with destination firms far beyond one particular local destination. Thus, it seems that firms learn to apply the destination brand as an explicit marketing strategy as a result of collaborating with these or other professionalized and central firms.

DMOs play important roles in destination marketing and branding. They act as important catalysts for creating interfirm structures and relationships to develop destinations as coproducing systems. DMOs primarily focus on issues within their respective destinations, but this study shows that simply focusing on issues at the destination may limit its development. By fostering close ties between the firms at the destination, DMOs can contribute to developing trust and unity. However, this may come at the expense of linkages

to actors in the wider network. Therefore, DMOs need to balance their focus on developing intra-destination linkages and their role as catalysts in creating inter-destination ties.

Gaining knowledge about how closeness centrality increases firms' co-branding strategies may also have managerial implications for other contexts, such as industry clusters aiming at leveraging a local brand, and umbrella branding strategies in local wine and food production. This study has illuminated the fact that extending network ties beyond a local context may increase and improve collective branding strategies, and stakeholders should encourage such networking activities.

#### *5.4. Methodological implications*

The study contributes to research methods by combining survey and interfirm network data from both within and across several tourism destinations. This is to our knowledge unusual. Scholars have previously studied interfirm networks at tourism destinations (e.g. N. Scott, Cooper, & Baggio, 2008), but analyzing network ties both within and between local destinations has enabled us to assess the role of interfirm network structures that are not limited by local destination boundaries.

In addition, the survey and network data have been collected independently through different procedures. This combination of methodologies is also unusual and strengthens validity by reducing problems related to common method variance (Lindell & Whitney, 2001; Malhotra, Kim, & Patil, 2006). The use of instrumental variables has further enabled us to show that closeness centrality is a cause, and not an effect, of co-branding. In-sample and out-of-sample comparisons have enabled us make inferences about tourism firms' co-branding strategies beyond the firms participating in the survey.

Finally, we have collected network data based on primary data and not on archival data as many network studies do. By specifically asking about ties to all other destination

firms, as well as to firms outside the destination, the study avoids the risk of missing informal relationships that might be important. As Powell et al. (1996: 120) argue “Beneath most formal ties... lies a sea of informal relations,” and this may contain important aspects of interfirm structures that the use of archival data fails to identify. Our data collection procedures have secured the inclusion of both formal and informal ties.

### 5.5. *Limitations and future research*

The response rate for the survey data is lower than for the network data, but in-sample and out-of-sample comparisons (Table 7) indicate that the surveyed firms represent a suitable sample for hypothesis testing (cf. our discussion in Section 4.5). By the same token, we should be cautious about generalizing the study’s findings to firms that have lower or higher closeness centrality than those in the sample. To validate the findings further, future research should replicate the present study, and if possible access more complete network and survey data. However, we should note that our empirical results are fairly robust despite the low number of observations. We should also note that merging network and survey data is challenging, but future studies should nevertheless aim to access more complete data from a larger number of respondents. The destination branding literature suggests that commitment, brand acceptance, education of locals, brand guidelines, and local agreements are important, and future research should address these issues in relation to co-branding practices.

This paper addresses firms’ structural network position in explaining co-branding practice. We acknowledge that relational aspects, in terms of the characteristics of individual ties (whether they involve high levels of trust, problem solving, etc.), can also be of interest (Gulati, 1998; Ness, 2009). However, simultaneously including both structural and relational variables in the same study will add complexity (see for instance Hinde, 1976), which can be challenging to handle both theoretically and methodologically. Nevertheless, future studies

should try to complement structural network data with relational data, and furthermore, qualitative data can provide more in-depth knowledge about the mechanisms through which firms actually learn to apply the destination brand as an explicit strategic marketing tool. Future research should also study this type of co-branding in other contexts, for example industry clusters or local clusters of wine and food producers.

The focus in this study has been on examining co-branding as an effect variable. In unreported analyses, we tested the relationship between co-branding and firm performance (measured as perceived profit or sales growth compared with competitors), but the analyses yielded negligible and insignificant results. This may be in contrast to our previous argument that co-branding is a source of positive synergies in a destination context (Dioko & So, 2012; Tasci & Guillet, 2011) through transfer or spillover effects (Park et al., 1996; Simonin & Ruth, 1998). However, a potential positive effect of co-branding on performance may be more likely at the destination level than at the firm level. With reference to destination development, Aarstad (2013, p. 71) writes that “the implementation of a common branding strategy will not fully benefit those entities having adopted such a strategy, unless a critical mass of other entities have followed suit in adopting a similar strategy.” In other words, co-branding may increase performance as a collective good at the destination level, but a critical mass of adoptees is probably necessary. Future research should address and compare performance effects at the destination and firm levels, and consider possible time asymmetry between the implementation of a co-branding strategy and performance.

## References

- Aarstad, J. (2012). Do structural holes and network connectivity really affect entrepreneurial performance? *Journal of Entrepreneurship*, 21(2), 253-268.
- Aarstad, J. (2013). Tourism Destination Development and Industries' Scale-Free Distribution. *Scandinavian Journal of Hospitality and Tourism*, 13(1), 70-74. doi: 10.1080/15022250.2013.771914

- Ahuja, G. (2000). Collaboration networks, structural holes and innovation: A longitudinal study. *Administrative Science Quarterly*, 45(3), 425-455.
- Ashton, A. S. (2014). Tourist destination brand image development—an analysis based on stakeholders' perception: A case study from Southland, New Zealand. *Journal of Vacation Marketing*, 20(3), 279-292. doi: 10.1177/1356766713518061
- Balakrishnan, M. S. (2009). Strategic branding of destinations: a framework. *European Journal of Marketing*, 43(5-6), 611-629. doi: 10.1108/03090560910946954
- Beckman, C. M., Haunschild, P. R., & Phillips, D. J. (2004). Friends or Strangers? Firm-Specific Uncertainty, Market Uncertainty, and Network Partner Selection. *Organization Science*, 15(3), 259-275.
- Bollen, K. (1989). *Structural Equation with Latent Variables*. USA: John Wiley & Sons, Inc.
- Bollen, K., & Lennox, R. (1991). Conventional wisdom on measurement: A structural equation perspective. *Psychological Bulletin*, 110(2), 305-314.
- Boo, S., Busser, J., & Baloglu, S. (2009). A model of customer-based brand equity and its application to multiple destinations. *Tourism Management*, 30(2), 219-231. doi: 10.1016/j.tourman.2008.06.003
- Borgatti, S. P., Everett, M. G., & Freeman, L. C. (2002). *UCINET 6.135*. Natick: Analytic Technologies.
- Brass, D. J., Galaskiewicz, J., Greve, H. R., & Tsai, W. P. (2004). Taking stock of networks and organizations: A multilevel perspective. *Academy of Management Journal*, 47(6), 795-817.
- Bregoli, I. (2013). Effects of DMO Coordination on Destination Brand Identity: A Mixed-Method Study on the City of Edinburgh. *Journal of Travel Research*, 52(2), 212-224. doi: 10.1177/0047287512461566
- Burt, R. S. (1992). *Structural Holes: The Social Structure of Competition*. Cambridge, MA: Harvard University Press.
- Burt, R. S. (2004). Structural holes and good ideas. *American Journal of Sociology*, 110(2), 349-399.
- Buvik, A., & John, G. (2000). When does vertical coordination improve industrial purchasing relationships? *Journal of Marketing*, 64(4), 52-64. doi: 10.1509/jmkg.64.4.52.18075
- Cai, L. P. A. (2002). Cooperative branding for rural destinations. *Annals of Tourism Research*, 29(3), 720-742. doi: 10.1016/s0160-7383(01)00080-9
- Chen, C. F. (2010). Exploring relationships between Mongolian destination brand equity, satisfaction and destination loyalty. *Tourism Economics*, 16(4), 981-994. doi: 10.5367/te.2010.0004
- Churchill, G. A., Jr. (1979). A Paradigm for Developing Better Measures of Marketing Constructs. *Journal of Marketing Research*, 16(1), 64-73. doi: 10.2307/3150876
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94(davis), S95-S120.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334.
- Deshpande, R., Farley, J. U., & Webster, F. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis. *Journal of Marketing*, 57(1), 23-37.
- Dickinson, S., & Barker, A. (2007). Evaluations of branding alliances between non-profit and commercial brand partners. *International Journal of Nonprofit and Voluntary Sector Marketing*, 12(1), 75-89.
- Dioko, L. A. N., & So, S. I. (2012). Branding destinations versus branding hotels in a gaming destination—Examining the nature and significance of co-branding effects in the case

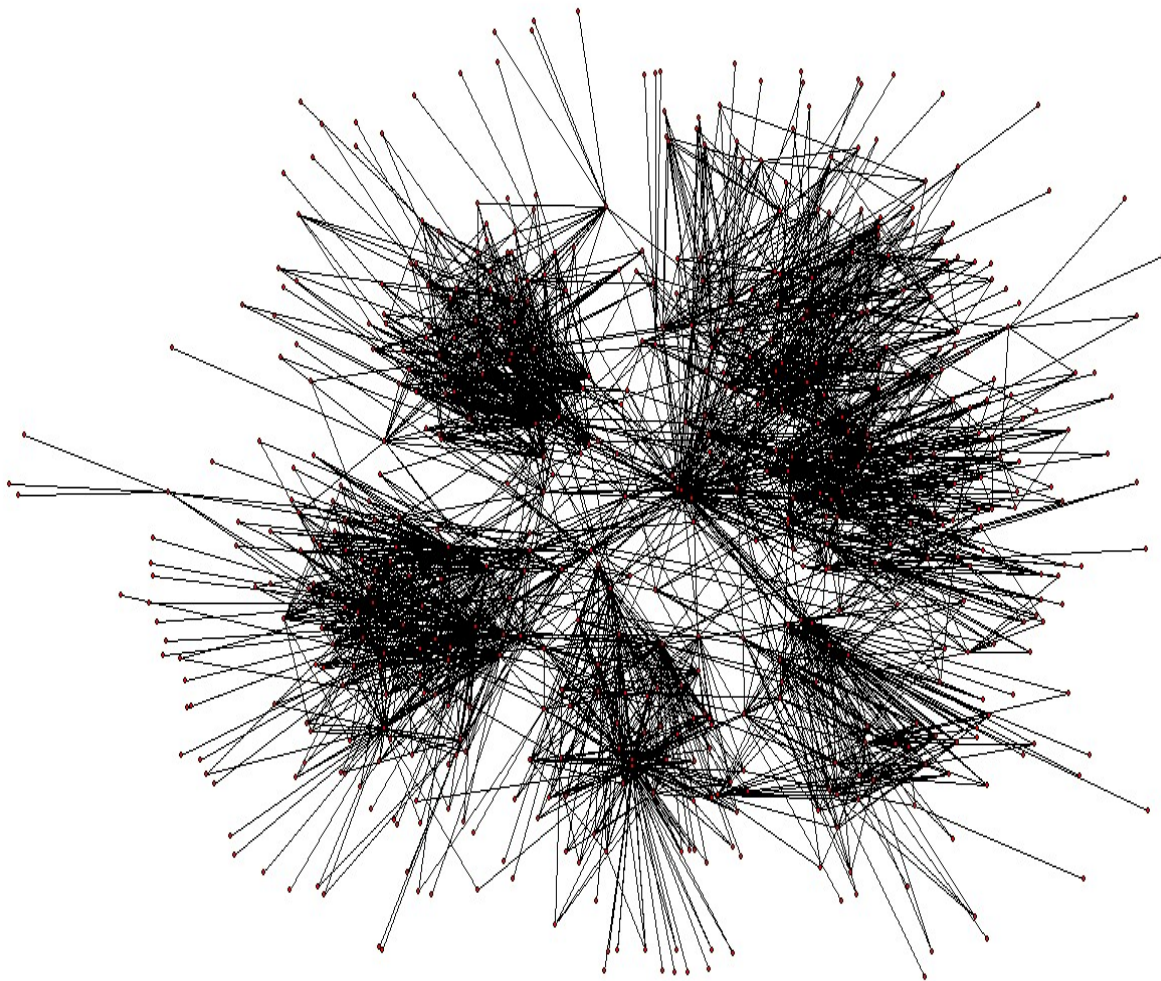
- study of Macao. *International Journal of Hospitality Management*, 31(2), 554-563. doi: 10.1016/j.ijhm.2011.07.015
- Flagestad, A., & Hope, C. A. (2001). Strategic success in winter sports destinations: a sustainable value creation perspective. *Tourism Management*, 22(5), 445-461. doi: [http://dx.doi.org/10.1016/S0261-5177\(01\)00010-3](http://dx.doi.org/10.1016/S0261-5177(01)00010-3)
- Fornell, C., & Larcker, D. F. (1981). Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. *Journal of Marketing Research*, 18(3), 382-388. doi: 10.2307/3150980
- Freeman, L. C. (1979). Centrality in social networks: Conceptual clarification. *Social Networks*, 1(3), 215-239.
- Fyrberg, A. (2008). The Olympic Equestrian Games: brand collaboration and associations within a destination and a sports event. *International Journal of Sports Marketing & Sponsorship*, 9(4), 307-319.
- Ganesan, S. (1994). Determinants of long-term orientation in buyer-seller relationships. *Journal of Marketing*, 58(2), 1-19.
- Garcia-Pont, C., & Nohria, N. (2002). Local versus global mimetism: The dynamics of alliance formation in the automobile industry. *Strategic Management Journal*, 23(4), 307-321. doi: 10.1002/smj.225
- García, J. A., Gómez, M., & Molina, A. (2012). A destination-branding model: An empirical analysis based on stakeholders. *Tourism Management*, 33(3), 646-661. doi: <http://dx.doi.org/10.1016/j.tourman.2011.07.006>
- Grossman, R. P. (1997). Co-branding in advertising: Developing effective associations. *Journal of Product & Brand Management*, 6(3), 191-201.
- Gulati, R. (1998). Alliances and networks. *Strategic Management Journal*, 19(4), 293-317.
- Hanna, S., & Rowley, J. (2015). Towards a model of the Place Brand Web. *Tourism Management*, 48(0), 100-112. doi: <http://dx.doi.org/10.1016/j.tourman.2014.10.012>
- Hansen, L. P. (1982). Large sample properties of generalized method of moments estimators. *Econometrica*, 50(4), 1029-1054.
- Haugland, S. A., Ness, H., Grønseth, B.-O., & Aarstad, J. (2011). Development of tourism destinations: An integrated multilevel perspective. *Annals of Tourism Research*, 38(1), 268-290.
- Haunschild, P. R., & Miner, A. S. (1997). Modes of interorganizational imitation: The effects of outcome salience and uncertainty. *Administrative Science Quarterly*, 42(3), 472-500.
- Heide, J. B., & John, G. (1990). Alliances in Industrial Purchasing: The Determinants of Joint Action in Buyer-Supplier Relationships. *Journal of Marketing Research*, 27(1), 24-36. doi: 10.2307/3172548
- Hem, L. E., & Iversen, N. M. (2004). How to Develop a Destination Brand Logo: A Qualitative and Quantitative Approach. *Scandinavian Journal of Hospitality and Tourism*, 4(2), 83-106. doi: 10.1080/15022250410003852
- Hinde, R. A. (1976). Interactions, Relationships and Social Structure. *Man*, 11(1), 1-17. doi: 10.2307/2800384
- Hosany, S., Ekinçi, Y., & Uysal, M. (2006). Destination image and destination personality: An application of branding theories to tourism places. *Journal of Business Research*, 59(5), 638-642. doi: 10.1016/j.jbusres.2006.01.001
- Jaworski, B. J., & Kohli, A. K. (1993). Market orientation: Antecedents and consequences. *Journal of Marketing*, 57(3), 53-70.
- Kneesel, E., Baloglu, S., & Millar, M. (2010). Gaming Destination Images: Implications for Branding. *Journal of Travel Research*, 49(1), 68-78. doi: 10.1177/0047287509336474

- Konecnik, M., & Gartner, W. C. (2007). Customer-based brand equity for a destination. *Annals of Tourism Research*, 34(2), 400-421. doi: 10.1016/j.annals.2006.10.005
- Konecnik Ruzzier, M., & de Chernatony, L. (2013). Developing and applying a place brand identity model: The case of Slovenia. *Journal of Business Research*, 66(1), 45-52. doi: <http://dx.doi.org/10.1016/j.jbusres.2012.05.023>
- Leuthesser, L., Kohli, C., & Suri, R. (2003). 2+2=5? A framework for using co-branding to leverage a brand. *Brand Management*, 11(1), 35-47.
- Lindell, M. K., & Whitney, D. J. (2001). Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology*, 86(1), 114-121. doi: 10.1037//0021-9010.86.1.114
- Malhotra, N. K., Kim, S. S., & Patil, A. (2006). Common method variance in IS research: A comparison of alternative approaches and a reanalysis of past research. *Management Science*, 52(12), 1865-1883. doi: 10.1287/mnsc.1060.0597
- Marzano, G. (2008). Power, destination branding and the implications of a social network perspectives. In N. Scott, R. Baggio, & C. Cooper (Eds.), *Network Analysis and Tourism: From Theory to Practice* (pp. 131-144). Clevedon: Multilingual Matters.
- Marzano, G., & Scott, N. (2009). Power in destination branding. *Annals of Tourism Research*, 36(2), 247-267. doi: 10.1016/j.annals.2009.01.004
- Ness, H. (2009). Governance, Negotiations, and Alliance Dynamics: Explaining the Evolution of Relational Practice. *Journal of Management Studies*, 46(3), 451-480. doi: 10.1111/j.1467-6486.2008.00818.x
- Ness, H., Aarstad, J., Haugland, S. A., & Grønseth, B.-O. (2014). Destination development: The role of inter-destination bridge ties. *Journal of Travel Research*, 53(2), 183-195. doi: 10.1177/0047287513491332
- Nieminen, J. (1974). On centrality in a graph. *Scandinavian Journal of Psychology*, 15(4), 322-336.
- Niininen, O., Hosany, S., Ekinici, Y., & Airey, D. (2007). Building a Place Brand: A Case Study of Surrey Hills. *Tourism Analysis*, 12(5-1), 371-385. doi: 10.3727/108354207783227894
- O'Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, 41(5), 673-690.
- O'Connor, N., Flanagan, S., & Gilbert, D. (2008). The Integration of Film-induced Tourism and Destination Branding in Yorkshire, UK. *International Journal of Tourism Research*, 10(5), 423-437. doi: 10.1002/jtr.676
- Park, C. W., Jun, S. Y., & Shocker, A. D. (1996). Composite branding alliances: An investigation of extension and feedback effects. *Journal of Marketing Research*, 33(4), 453-466. doi: 10.2307/3152216
- Pechlaner, H., Raich, F., & Zehrer, A. (2007). The Alps: Challenges and Potentials of a Brand Management. *Tourism Analysis*, 12(5-1), 359-369. doi: 10.3727/108354207783228000
- Pike, S. (2005). Tourism destination branding complexity. *Journal of Product & Brand Management*, 14(4), 258-259.
- Pike, S. (2009). Destination brand positions of a competitive set of near-home destinations. *Tourism Management*, 30(6), 857-866. doi: 10.1016/j.tourman.2008.12.007
- Pike, S., Bianchi, C., Kerr, G., & Patti, C. (2010). Consumer-based brand equity for Australia as a long-haul tourism destination in an emerging market. *International Marketing Review*, 27(4), 434-449. doi: 10.1108/02651331011058590
- Pike, S., & Page, S. J. (2014). Destination Marketing Organizations and destination marketing: A narrative analysis of the literature. *Tourism Management*, 41(0), 202-227. doi: <http://dx.doi.org/10.1016/j.tourman.2013.09.009>

- Powell, W. W., Koput, K. W., & Smith-Doerr, L. (1996). Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly*, 41(1), 116-145.
- Reve, T., Haugland, S. A., & Grønhaug, K. (1995). *Internasjonalt konkurransedyktige bedrifter (The international competitiveness of companies)*. Oslo: Tano.
- Rodan, S. (2010). Structural holes and managerial performance: Identifying the underlying mechanisms. *Social Networks*, 32(3), 168-179.
- Sandvik, I. L., & Sandvik, K. (2003). The impact of market orientation on product innovativeness and business performance. *International Journal of Research in Marketing*, 20(4), 355-376. doi: 10.1016/j.ijresmar.2003.02.002
- SAS/JMP. *Version 10*. Cary, NC, USA: SAS Institute Inc.
- Scott, J. (2000). *Social Network Analysis: A Handbook* (Second ed.). London: Sage.
- Scott, N., Cooper, C., & Baggio, R. (2008). Destination networks: Four Australian cases. *Annals of Tourism Research*, 35(1), 169-188. doi: 10.1016/j.annals.2007.07.004
- Selnes, F., & Sallis, J. (2003). Promoting relationship learning. *Journal of Marketing*, 67(3), 80-95. doi: 10.1509/jmkg.67.3.80.18656
- Sheehan, L., Ritchie, J. R. B., & Hudson, S. (2007). The Destination Promotion Triad: Understanding Asymmetric Stakeholder Interdependencies Among the City, Hotels, and DMO. *Journal of Travel Research*, 46(1), 64-74.
- Simonin, B. L., & Ruth, J. A. (1998). Is a company known by the company it keeps? Assessing the spillover effects of brand alliances on consumer brand attitudes. *Journal of Marketing Research*, 35(1), 30-42. doi: 10.2307/3151928
- StataCorp. (2013). *Version 13.1* (Vol. StataCorp LP). College Station, TX StataCorp LP.
- Stock, J. H., Wright, J. H., & Yogo, M. (2002). A survey of weak instruments and weak identification in generalized method of moments. *Journal of Business and Economic Statistics*, 20(4), 518-529.
- Tasci, A. D. A., & Denizci, B. (2010). Fashionable hospitality: A natural symbiosis for Hong Kong's tourism industry? *International Journal of Hospitality Management*, 29(3), 488-499. doi: 10.1016/j.ijhm.2009.08.006
- Tasci, A. D. A., & Guillet, B. D. (2011). It affects, it affects not: A quasi-experiment on the transfer effect of co-branding on consumer-based brand equity of hospitality products. *International Journal of Hospitality Management*, 30(4), 774-782. doi: 10.1016/j.ijhm.2010.12.009
- Uzzi, B. (1997). Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42(1), 35-67.
- Van der Waerden, B. L. (1953). Order tests for the two-sample problem and their power. *Indagationes Mathematicae*, 15(series A), 303-316.
- Wang, Y., & Xiang, Z. (2007). Toward a Theoretical Framework of Collaborative Destination Marketing. *Journal of Travel Research*, 46(1), 75-85.
- Washburn, J. H., Till, B. D., & Priluck, R. (2000). Co-branding: brand equity and trial effects. *Journal of Consumer Marketing*, 17(7), 591-604.
- Wasserman, S., & Faust, K. (1994). *Social Network Analysis: Methods and Applications* (Vol. 8). Cambridge, NY: Cambridge University Press.
- Wooldridge, J. M. (2006). *Introductory Econometrics: A Modern Approach* (Vol. 3rd). Mason, OH: Thomson South-Western.
- Yoon, Y., & Uysal, M. (2005). An examination of the effects of motivation and satisfaction on destination loyalty: a structural model. *Tourism Management*, 26(1), 45-56. doi: <http://dx.doi.org/10.1016/j.tourman.2003.08.016>



Zhang, H., Fu, X., Cai, L. A., & Lu, L. (2014). Destination image and tourist loyalty: A meta-analysis. *Tourism Management*, 40(0), 213-223. doi: <http://dx.doi.org/10.1016/j.tourman.2013.06.006>



**Figure 1.** Graphical display of the intra- and inter-destination network

**Table 1**  
Measures

Variable	Measures
Co-branding	<p>The destination's reputation is important for the marketing and sale of the firm's products and services.</p> <p>The destination as a brand is important for the marketing and sale of the firm's products and services.</p> <p>We actively use the destination's brand in marketing and selling our products and services.</p>
Degree centrality	The number of direct ties a firm has to other actors in the network.
Closeness centrality	The inverse of the sum of the path length or geodesic distances from the focal firm to all other firms in the network.
Innovation	<p>Compared with our most important competitors, our firm is often the first to produce and supply products and services in better and more efficient ways.</p> <p>Compared with our most important competitors, our firm is often the first to the market with new products and services.</p>
Imitation	<p>If we observe that other firms offer high-quality products and services, we use these as role models to achieve the same objectives in our firm.</p> <p>When we know that other firms have efficient routines and operating processes, we try to implement similar practices in our firm.</p>
Uncertainty	<p>In our industry, end-user needs and preferences change rapidly.</p> <p>The demand for our products varies continually.</p>
Firm size	Number of employees.
Structural holes	The extent to which a firm has network ties to other firms that are <i>not</i> connected to each other.
Betweenness	A firm's importance or control of information or resources in a network.

**Table 2**  
Loadings and cross-loadings

	Co- branding (CB)	Degree (D)	Closeness (CL)	Inno- vation (IN)	Imi- tation (IM)	Uncertainty (U)	Firm size (FS)	Structural holes (SH)	Between- ness (B)
CB1	<b>.947</b>	.263	.408	-.051	.176	.132	.162	-.337	.323
CB2	<b>.969</b>	.322	.420	-.133	.178	.148	.129	-.378	.366
CB3	<b>.925</b>	.324	.476	.039	.140	.158	.111	-.376	.381
D	.321	<b>1.000</b>	.784	-.011	.254	.144	.225	-.921	.882
CL	.459	.784	<b>1.000</b>	.059	.179	.182	.263	-.818	.857
IN1	-.055	.042	.075	<b>.964</b>	.394	.024	.228	-.038	.105
IN2	-.046	-.072	.035	<b>.948</b>	.299	.079	.114	.074	.004
IM1	.136	.177	.106	.264	<b>.914</b>	.245	.142	-.175	.204
IM2	.183	.284	.213	.403	<b>.953</b>	.343	.220	-.236	.301
U1	.153	.140	.167	.023	.291	<b>.931</b>	.111	-.058	.182
U2	.128	.124	.166	.076	.298	<b>.900</b>	.143	-.054	.105
FS	.141	.225	.263	.184	.199	.137	<b>1.000</b>	-.272	.346
SH	-.385	-.921	-.818	.014	-.224	-.061	-.272	<b>1.000</b>	-.914
B	.377	.882	.857	.062	.277	.160	.346	-.914	<b>1.000</b>

**Table 3**

Cronbach's alpha, composite reliability, average variance extracted, and squared correlations among constructs

	Alpha	CR	AVE	D	CL	IN	IM	U	FS	SH	B
Degree (D)											
Closeness (CL)				.614							
Innovation (IN)	.906	.955	.914	.000	.004						
Imitation (IM)	.857	.933	.872	.065	.032	.135					
Uncertainty (U)	.809	.913	.838	.021	.033	.003	.103				
Firm size (FS)				.051	.069	.034	.040	.019			
Structural holes (SH)				.848	.669	.000	.050	.004	.074		
Betweenness (B)				.779	.735	.004	.077	.026	.119	.836	
Co-branding	.942	.963	.897	.103	.211	.003	.030	.024	.020	.148	.142

Cronbach's alpha (Alpha), composite reliability (CR), average variance extracted (AVE)

**Table 4**

Correlation matrix

Mean	SD		CB	IN	IM	U	FS	D	CL	SH
5.14	1.73	Co-branding (CB)								
3.99	1.52	Innovation (IN)	-.050							
4.30	1.52	Imitation (IM)	.168	.347**						
3.38	1.46	Uncertainty (U)	.153	.056	.309*					
0	.94	Firm size (FS)	.142	.181	.189	.139				
0	.95	Degree (D)	.320*	-.014	.241†	.143	.225†			
33.77	3.63	Closeness (CL)	.459***	.058	.165	.182	.263*	.784***		
0	.95	Structural holes (SH)	-.384**	.017	-.217†	-.061	-.272*	-.921***	-.818***	
0	.95	Betweenness	.376**	.059	.265*	.156	.346**	.882***	.857***	-.915***

N = 63

†p < .10

\*p < .05

\*\*p < .01

\*\*\*p < .001

Two-tailed tests

**Table 5**

Multilevel linear regression analyses (except Model 10), co-branding as dependent variable

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
<b>FIXED EFFECTS</b>										
Intercept	5.15*** (.231)	4.66*** (.834)	4.97*** (.814)	-2.14 (1.85)	-4.01 (2.86)	-3.64 (2.83)	-2.50 (.408)	-1.99 (3.09)	-2.81 (3.45)	-2.24 (1.81)
Innovation		-.167 (.149)	-.140 (.143)	-.171 (.132)	-.188 (.132)					
Imitation		.195 (.155)	.135 (.152)	.159 (.138)	.182 (.140)					
Uncertainty		.098 (.152)	.052 (.147)	-.015 (.137)	-.017 (.136)					
Firm size		.224 (.228)	.127 (.220)	.039 (.204)	.041 (.203)					
Degree (H1)			.522* (.222)		-.275 (.321)	-.165 (.321)				
Closeness (H2)				.220*** (.053)	.274** (.084)	.263** (.084)	.229*** (.052)	.214* (.091)	.238* (.102)	.219*** (.053)
Structural holes								-.072 (.359)		
Betweenness									-.042 (.396)	
<b>RANDOM EFFECTS</b>										
Residual	2.88 (.543)	2.66 (.506)	2.37 (.457)	1.99 (.389)	1.98 (.387)	2.08 (.408)	2.08 (.408)	2.08 (.408)	2.09 (.409)	2.31 (.412)
Destination effect	.050 (.200)	.083 (.222)	.197 (.293)	.294 (.350)	.270 (.334)	.253 (.335)	.262 (.340)	.268 (.348)	.256 (.340)	
Wald $\chi^2$		4.56 n.s.	10.73†	23.20***	24.00***	20.04***	19.76***	19.87***	19.73***	16.85***
Log likelihood	-123.3	-121.0	-118.5	-114.0	-113.7	-115.0	-115.2	-115.1	-115.2	-115.8
Likelihood ratio $\chi^2$	.07 n.s.	.18 n.s.	.80 n.s.	1.67†	1.52 n.s.	1.26 n.s.	1.33 n.s.	1.36 n.s.	1.25 n.s.	

Dependent variable: co-branding. N = 63, number of destinations = 8, † p < .10; \* p < .05; \*\* p < .01; \*\*\* p < .001, two-tailed tests of significance. Standard error in parentheses.

**Table 6**

Validation of instruments and GMM estimates, co-branding as dependent variable

	Model 1	Model 2
Intercept	-1.54 (1.90)	-1.79 (1.96)
Closeness (H2)	.198*** (.055)	.204*** (.055)
Wald Chi-Square	12.83***	13.58***
First-stage regression Partial R-Square	.622	.622
F Value	47.73***	117.8***
Hansen's <i>J</i> Chi-Square	.068	.654
P value	.795	.419

N = 63; \*\*\* p < .001; Two-tailed tests

Regression coefficients with robust standard error in parentheses. Co-branding is dependent variable.

Degree centrality and firm size are instruments and closeness centrality is instrumented. Model 1 applies robust weighting matrix. Model 2 applies clustered weighting matrix with reference to firms' localization at different destinations.

**Table 7**

In-sample and out-of-sample comparisons

	Observations	Variable	Min.	Max.	Mean	SD
In-sample	63	Closeness (de-facto)	26.41	42.07	33.77	3.63
		Co-branding (de-facto)	1.00	7.00	5.14	1.73
		Co-branding (estimated)	3.53	6.96	5.14	.793
Out-of-sample	487	Closeness (de-facto)	20.39	46.88	29.83	3.67
		Co-branding (estimated)	2.22	8.01	4.28	.804

Estimation is conducted with reference to Model 10 in Table 5.