Related and unrelated variety in a tourism context

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Although the topic of destination development has received much attention (Haugland, Ness, Grønseth, & Aarstad, 2011), there has been a limited focus on how the composition of an industry structure can influence growth in a tourism region. In this research note we will argue that a tourism destination in a region with abundant *related* variety (where firms operate in different industries sharing similarities), yet with limited *unrelated* variety (where firms operate in different industries sharing few similarities), is optimal for growth and development. We will further aim to exemplify how related and unrelated variety can be studied in tourism research.

There has been a long-standing debate over whether a regional industry structure of specialization (Marshall, 1890) as opposed to diversification or variety (Jacobs, 1969) favors growth. This research note emphasizes instead that the classical dimension of regional specialization versus diversification or variety can be decomposed into two dimensions of (1) specialization versus related variety and (2) specialization versus unrelated variety (see Fig. 1). If we assume a theoretical region where all firms operate in exactly the same industry, this would be a specialized region, absent both related and unrelated variety. Thus, related variety does *not* lie necessarily somewhere between specialization and diversification, but is a genuine dimension where increasing value means increasing "richness" of industrial similarities. Correspondingly, unrelated variety means "richness" of industrial dissimilarities.

A region with related variety can be described as a context with relatively narrow cognitive distance (cf. Frenken, Van Oort, & Verburg, 2007; Nooteboom, Van Haverbeke, Duysters, Gilsing, & van den Oord, 2007) enabling potential spillover effects by recombining information and resources from multiple and complementary perspectives. In line with this reasoning, research finds that related variety is associated with regional innovation (Tavassoli & Carbonara, 2014). Studying economic geographical regions in Norway, we also find that related industrial variety, measured by the use of Standard Industrial Classification (SIC) codes, increases enterprise innovation (the first author can provide statistical details upon request).

A tourism destination located in a particular region can be labeled a coproducing system where the service or product from a visitor's perspective is normally offered by numerous more or less autonomous providers (Haugland et al., 2011). A critical issue is that the coproduction should be as seamless as possible, and we argue that a destination with related variety is likely to achieve this. Related variety implies that there is a multitude of providers offering different but complementary products. Firms operating in related industries also share an overlapping knowledge base, enabling them to collaborate in the effort to leverage an integrated tourism product. With reference to our argument above, related variety can finally enable a tourism destination to provide novel and innovative products or services. We therefore propose the following.

Proposition 1. Coproduction and innovation will increase in a tourism destination located in a region with related industrial variety.

In contrast, seamless coproduction in a region with unrelated variety is likely to be limited, because of a lack of local complementarity in products and services. Unrelated variety will also create a fragmented knowledge base that may further constrain the development of integrated and seamless tourism products. Research shows that lack of regional specialization decreases firm productivity (Wixe, 2015). In addition, we find that regional unrelated industrial variety decreases enterprise productivity (the first author can provide statistical details upon request). This can be attributed to

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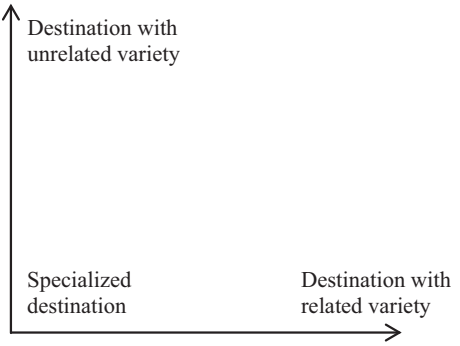

Fig. 1. Dimensions of regional related and unrelated industry variety.

a lack of local competition and a lack of economies of scale, and the inefficient deployment of resources in regions with an unrelated and fragmented industry and knowledge base. We therefore propose the following.

Proposition 2. Coproduction and efficiency will decrease in a tourism destination located in a region with unrelated industrial variety.

Taken together, we argue that a region with abundant related variety but with limited unrelated variety (the lower right-hand corner of Fig. 1) will maximize coproduction, innovation, and efficiency in tourism services. To our knowledge, Proposition 1 and 2 have yet to be rigorously tested in a tourism context, and in the following we briefly suggest how firms' SIC codes can be applied to model the concepts of related and unrelated variety at the regional level (e.g. a predefined tourism destination region).

Related and unrelated variety can be measured by using Shannon's (1948a, 1948b) entropy measure and firms' SIC codes at level two, a relatively crude distinction, and level five, the finest-grained distinction. The main advantage of the entropy measure is that it can be decomposed at different levels of industry classes (Frenken et al., 2007). Applying Shannon's entropy measure at level two, regional unrelated variety is defined as follows:

$$\text{Unrelated variety in region } i\ (\mathrm{UV}_i) = \sum_{k=1}^{n} s_{k,i} \ln(1/s_{k,i}),$$

where $s_{k,i}$ is the proportion of firms in class k (SIC code at level two) in tourism region i. If $s_{k,i} = 0$, then $\ln(1/s_{k,i}) = 0$; n is the number of identified SIC codes at level two. Applying Shannon's entropy measure at level five, the finest-grained distinction of industrial classes, defines the total variety (TV_i), where related variety (RV_i) is defined as follows: $\mathrm{RV}_i = \mathrm{TV}_i - \mathrm{UV}_i$. That is, to model related variety, we first apply the entropy measure at the finest-grained level and then "take out" the effect of unrelated variety (cf. Frenken et al., 2007). Accordingly, total variety is the sum of related and unrelated variety: $\mathrm{TV}_i = \mathrm{UV}_i + \mathrm{RV}_i$.

Despite their limitations, we argue that firms' SIC codes can be used to model related and unrelated variety in tourism regions. An increasing number of firms operating in large regions will tend to inflate the measures of related and unrelated variety, but one approach to deal with this issue is to model normalized entropy (see Minosse et al., 2006). Regions with a strong presence of industries with no resemblance to tourism at all can also artificially inflate related and unrelated variety, but one approach to deal with this issue is to exclude irrelevant industries from the analyses.

We will further argue that scholars may study related and unrelated variety in a tourism context by taking a qualitative approach. In so doing, they may gain fine-grained information about the extent to which firms and industries operating at a particular destination relate to or complement each other. In other words, the propositions developed here can serve as a tool to classify and analyze the regional

context of tourism destinations both quantitatively and qualitatively—or better still—to triangulate the use of both approaches.

We believe that the concepts of related and unrelated variety represent fresh and promising perspectives for understanding and analyzing tourism destination development. However, of the utmost importance is the call for research that can rigorously test our propositions. Destination category or destination ownership structure (Aarstad, 2013) may moderate the association between related variety and seamless coproduction and innovation, respectively, and studies should aim to investigate such issues. Modeling related and unrelated variety, as suggested here, can also enable longitudinal studies of tourism destinations using secondary data. Accordingly, future studies should aim to analyze the dynamics of destination development with reference to related and unrelated variety, and possibly integrate the ideas from this research note with the tourism area life cycle model (Butler, 1980), or path-dependent regional development trajectories of positive or negative "lock-in", as suggested by Martin and Sunley (2006).

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