

Identifying Spatial Segments in International Markets

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Abstract

The identification of geographic target markets is critical to the success of companies that are expanding internationally. Country borders have traditionally been used to delineate such target markets, resulting in accessible segments and cost efficient entry strategies. However, at present such "countries-as-segments" strategies may no longer be valid. In response to the accelerating trend toward global market convergence and within-country fragmentation of consumer needs, cross-national consumer segmentation is increasingly used, in which consumers in different countries are grouped based on the similarities in their needs, ignoring the country borders.

In this paper, we propose new methodology that helps to improve the identification of spatial segments by using information on the location of consumers. Our methodology identifies spatial segments based on consumer needs and at the same time uses spatial information at the subcountry level. We suggest that segments of consumers are likely to demonstrate spatial patterns and develop a hierarchical Bayes approach specifying several types of spatial dependence. Rather than assigning consumers to segments, we identify spatial segments consisting of predefined regions. We develop four models specifying different types of spatial dependence. Two models characterize situations of *spatial independence* and *countries-as-segments*, which represent existing approaches to international segmentation. The other two models accommodate *spatial association* within and *spatial contiguity* of segments and are new to the segmentation literature. The models account for within-segment heterogeneity in multiattribute-based segmentation, covering numerous applications in response-based market segmentation. We show that the models can be estimated using Gibbs sampling, where for the spatial contiguity model, a rejection sampling procedure is proposed.

We conduct an analysis of synthetic data to assess the performance of the most restrictive spatial segmentation model

in situations where spatial patterns do or do not underlie the data-generating process. Data for which the true properties are known were analyzed with models of spatial contiguity and spatial independence of segments. The results indicate that a substantial improvement in parameter recovery may be realized if a spatial pattern underlies the data-generating process, but that the spatial-independence model may provide a better alternative when this is not the case.

We empirically illustrate our approach in the setting of international retailing, using survey data collected among consumers in seven countries of the European Union. A store image measurement instrument was used. This instrument is based on the multiattribute model of store image formation, with overall evaluations of stores as a dependent variable and image perceptions as predictor variables. The segmentation basis consists of (latent) importances of store image attributes, i.e., product quality, service quality, assortment, pricing, store atmosphere, and location. We argue that store image attribute importances are likely to display spatial variation and expect spatial concentration of segments, or even contiguity, to occur.

We apply and compare the four spatial segmentation models to the store image data. The countries-as-segments model receives lowest support from the data, less than that of the spatially independence model, which is in line with the current notion that consumer preferences cut across national borders. However, the spatially contiguity model and spatial-association model demonstrate the best fit. Although the differences between the various models are not very large, we find support, consistent across the two fit indices, for the spatial models.

Substantive results are presented for the spatial contiguity model. We identified five spatial segments that cut across borders. The segments give rise to different retail positioning strategies, and their importance estimates and location demonstrate face validity.

(*International Market Segmentation; MCMC Estimation; Spatial Information*)