

DO CULTURE-BASED SEGMENTS PREDICT SELECTION OF MARKET STRATEGY?

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Abstract

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Academists and practitioners have already acknowledged the importance of unobservable segmentation bases (such as psychographics) yet still focusing on how well these bases are capable of describing relevant segments (the identifiability criterion) rather than on how precisely these segments can predict (the predictability criterion). Therefore, this paper intends to add a debate to this topic by exploring whether culture-based segments do account for a selection of market strategy. To do so, a set of market strategy variables over a sample of 251 manufacturing firms was first regressed on a set of 19 cultural variables using canonical correlation analysis. Having found significant relationship in the first canonical function, it was further examined by means of correspondence analysis which cultural segments – if any – are linked to which market strategies. However, as correspondence analysis failed to find a significant relationship, it may be concluded that business culture might relate to the adoption of market strategy but not to the cultural groupings presented in the paper.

Keywords: market strategy, business culture, B2B, segmentation, psychographics, multivariate statistical techniques, predictability

INTRODUCTION

Market segmentation (whether B2C or B2B) has attracted a considerable attention during last five decades since its introduction by Wendell Smith (1956) into a marketing literature. From then on more than 1800 papers on segmentation have been published in peer-reviewed scientific journals (Boejgaard *et al.*, 2010). Despite the size of segmentation literature, however, only few papers have focused on B2B segmentation compared to B2C (1), on customer-driven segments compared to product-driven segments (2), on unobservable segmentation bases compared to observable bases (3), and finally on predictability of segmentation bases compared to their identifiability (4). Capitalizing on these shortcomings, this paper will therefore strive to close the gap by using unobservable segmentation base (rooted in the concept of business culture) relevant for a B2B realm and will further examine whether such base will allow for a prediction of market strategy adoption.

Having already proved that business culture has a merit for micro-segmentation (Jadczačková, 2013) – and thus enlarged the business culture discussion beyond the well-known applications in the field of organizational effectiveness (Schein, 2006), cross-cultural studies (Pothukuchi *et al.*, 2002), human resource management (Belbin, 2010) or implementation of change (Jones *et al.*, 2005; Kavanagh *et al.*, 2006) – thinking in terms of business culture as a possible predictor for the selection of market strategies might assist marketers in explaining why given strategy has been pursued. Put another way, by identifying both ends of the organizational behavior continuum, that is, the business culture (the trigger) on one side and the market strategy (the outcome) on the other, more lifelike and comprehensive profile of a segment is to be created. Furthermore, thinking in terms of customer's customers allows for more focused managerial approach and strengthened strategic orientation of industrial buyers, a crucial point in industrial marketing (Verhallen *et al.*, 1998).

MATERIALS AND METHODS

To reiterate, it is the objective of this paper to prove whether adoption of a strategy may be ascribed to culturally driven segments (namely: the Porter-type (segment 1), the bureaucratic type (segment 2), the competitive type (segment 3), the consensual type (segment 4) and the entrepreneurial type (segment 5); for reference on segment description see Jadczková (2013)). To do so, a two-stage segmentation model (Wind *et al.*, 1974) was applied within which business culture relevant macro-segment was defined along technology a firm applies (Chatman *et al.*, 1994) based on Thompson's classification of technologies (Thompson, 2011). Micro-segments were then described along 19 cultural variables selected with respect to the model of competing values (Cameron *et al.*, 2006; Desphandé *et al.*, 2004) and measured on a 5-point Likert scale (where '5' stands for a high level of given factor and '1' for a low level of given factor). Finally, market strategies were explored within the framework of the Porter typology classifying strategies into the following generic types: cost leadership, cost focus, differentiation and differentiation focus.

Given the within-industry similarity (Gordon, 1991) in terms of technology, the target population was defined as:

- Firms occupying manufacturing industry and using a long-linked technology.
- Firms with a seat in the Czech Republic.
- Firms with more than 50 employees or 50 million CZK p.a. in turnover.
- Firms with Llc. or Plc. as a legal form.

According to the Czech Statistical Office the target population with respect to the above listed criteria (and excluding firms facing bankruptcy, liquidation or forced execution and regarding the capacity possibilities along with the satisfactory level of representativeness) amounted to 2344. In doing so, the sample was set to cover at least 10% of the target population (i.e. min. 230 firms) (Blažek *et al.*, 2007).

As former consent of firms was needed to start interrogating, random sampling could not been employed. Instead, quota sampling was performed with pre-specified quotas to ensure representativeness in terms of territory, number of employees and legal form. The survey data were then collected using person-administered structured questionnaires where interviewer reads questions (face-to-face) and records respondents' answers. This type of interrogating is commonly associated with a good response rate (here 16%) and contributed to the final sample size of 251 firms (after listwise treatment of missing values). Based on the concept of Organization's founder (Boeker, 2010) founders/CEOs/top managers were given the priority when interviewing. Ultimately, the questionnaire data were gathered by collective efforts between the Centre of Research into the Competitiveness of the Czech Economy at

the Faculty of Economics and Administration of the Masaryk University and the market research firm Augur Consulting (Blažek *et al.*, 2007).

Regarding the final sample size to variable ratio, it is customary to keep a minimum value 5:1 (Hair *et al.*, 2010) which was highly outperformed here (251 cases after listwise treatment of missing values and 19 cultural variables).

For the purpose of this paper, it was first examined whether 19 cultural variables, taken as a set, would account for market strategy variables, taken as a set, using canonical correlation analysis (CCA). CCA is mainly useful in situations where associations between two sets of composites (here business culture and market strategy) are of greater importance than associations between individual manifest variables. The justification for preferring a composite over single variables may be mainly seen in a better ability of composite to capture the complexity of studied phenomenon to be hardly accomplished when studying variables individually.

For the sake of simplicity, however, only following CCA characteristics will be regarded: significant (i.e. different from zero) canonical correlation coefficient based on Bartlett's Chi-square test and measuring the degree of correspondence for the pair of canonical variates (1), variance extracted from manifest variables by their respective variates (2), and most importantly, redundancy index measuring the shared variance between the canonical variates (3). As the use of CCA was limited merely to verification of a relationship between sets of variables regardless of how much single manifest variables correlate with the variate (relevant for interpretation), algebraic treatment of canonical loadings is beyond the scope of this paper.

On the whole, advantage of CCA shall be primarily viewed in two points. First, CCA can handle multiple relationships at once and therefore, limits the inflation of Type I error. And second, CCA is likewise able to accommodate categorical data extending the use of CCA among social sciences as well (Hair *et al.*, 2010).

Having verified the hypothesis on business culture and market strategy relatedness, in the next step correspondence analysis (CORA) will reveal which cultural segments, if any, are more than average attracted to which strategies. More specifically, CORA will reproduce the differences in relative frequencies of a row profile matrix (here cultural segments) and column profile matrix (here market strategies) into a new two-dimensional coordinate system. In doing so, the differences in relative frequencies will be plotted into the correspondence map so as to yield the Chi-square distance. As individual associations between row-column pairs are of the primary interest, a simultaneous projection of weighted averages of row and column coordinates into a single plot by means of symmetrical normalization will be performed. Finally, only correspondence map with inertia significantly different from zero produced by

Chi-square statistic is worth of further investigation. However, even then precautions when interpreting must be taken. First precaution is never to consider two neighboring variables in the correspondence map as identical since they are linked through two systems. It is because row coordinates were calculated from the row profile matrix and column coordinates from the column profile matrix, that is, as a result of two separate analyses. And second, never to explain one variable through another variable (Cathelat, 1993). Therefore, it is only meaningful to interpret distances between row points and distances between column points but not distances between variables (Garson, 2012).

Ultimately, it is important to note that because of the well-known difficulties (e.g. Norman, 2010) in using Likert-type data along with the purpose of the paper, it was decided to use less conservative test and set the significance level at 0.1 instead of conventional 0.05. By doing so, the chance of falsely rejecting the true null hypothesis (the Type I error) will increase in exchange for lower chance of committing the Type II error which was deemed as more serious violation of the study purpose.

RESULTS AND DISCUSSION

As mentioned elsewhere, CCA will first examine if a choice of market strategy may be linked to business culture. As Tab. I demonstrates, the hypothesized relationship was found significant at $P = 0.09$ for the first canonical function which produced canonical correlation coefficient of 0.41 pointing to mild relationship, an inborn characteristics of ordinal type data. As it is obvious from the line 'Variance extracted' 3 canonical variates captured 100% of the dependent variable (DV) set while only 16% of the independent variable (IV) set variance. The most important situation though provides the line 'Redundancy index' stating that IV set can collectively predict 11% of values of DV set (here the redundancy index works as a squared multiple

correlation coefficient in multivariate regression analysis). Put another way, almost 11% of variation in market strategy adoption is explained by the variation in business culture. Therefore, once significant relationship was established, it will be further interesting whether different cultures lead to different market strategy choices based on CORA.

Commonly, CORA starts with a cross-tabulation of data using correspondence table. In the next step, the correspondence table ought to be visually inspected and checked for possible outliers – values with extreme entries for all rows and all columns. By definition, extreme entries are values which substantially deviate from the rest of the dataset, here, for instance, objects with only zeroes as entries. Due to the fact, that CORA is very sensitive to outliers (Garson, 2012; Hair *et al.*, 2010), these shall be removed from the dataset. In this regard, Tab. II (with segments in rows and market strategies in columns) was examined. As no outliers were identified, correspondence table was directly subjected to CORA.

Next in the SPSS output row profile and column profile tables were produced (however, due to analogous procedure only row profile table was disclosed). Row profile table (see Tab. III) shows relative frequencies across all columns which sum up to one. Row profile elements are calculated as a ratio of respective frequency over the row total (active margin column in Tab. III). For instance, the relative frequency, commonly interpreted as conditional probability, of a firm pursuing 'cost leadership', provided its membership in the cluster '1', is $6/30 = 0.2$. Similarly, the 'Mass' column, calculated as a ratio of column total and grand total, gives the proportion of each strategy with respect to all strategies. For example, the probability of all firms following the cost leadership is $56/250 = 0.224$.

Tab. IV – the summary table – brings together the most important statistics. Obviously, in this example three dimensions have evolved, yet only

I: Summary of canonical correlation analysis

N = 251 (listwise)		Canonical correl. coef.: 0.40860; Chi2(57) = 71.824; p = 0.08960	
Composites	DV set		IV set
	Market strategy	Business culture	
Variance extracted	100.00%	15.59%	
Redundancy index	10.96%	1.50%	

II: Correspondence table (clusters in rows, market strategies in columns)

Segments	Cost leadership	Differentiation	Cost focus	Differentiation focus	Active Margin
1	6	9	5	10	30
2	15	11	12	11	49
3	12	17	6	14	49
4	7	14	15	20	56
5	16	17	15	18	66
Active Margin	56	68	53	73	250

III: Row profiles (clusters in rows, market strategies in columns)

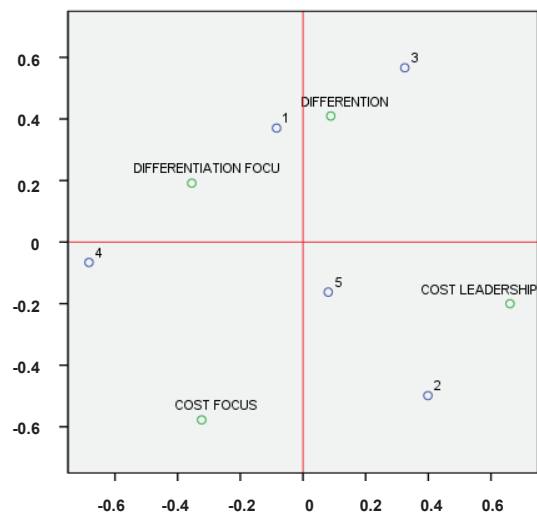
Segments	Cost leadership	Differentiation	Cost focus	Differentiation focus	Active Margin
1	.200	.300	.167	.333	1.000
2	.306	.224	.245	.224	1.000
3	.245	.347	.122	.286	1.000
4	.125	.250	.268	.357	1.000
5	.242	.258	.227	.273	1.000
Mass	.224	.272	.212	.292	

IV: Summary table of correspondence analysis

Dimension	Singular Value	Inertia	Chi Square	Sig.	Proportion of Inertia	
					Accounted for	Cumulative
1	.159	.025			.575	.575
2	.136	.018			.421	.996
3	.014	.000			.004	1.000
Total		.044	10.989	.530	1.000	1.000

two are necessary to reconstruct the patterns of relative frequencies since they account for 99.6% of the overall Chi-square value, and thus the inertia. Namely, dimension one explains 57.5% (sixth column) of the total 4.4% (third column) of variance explained in the model. And dimension two explains 42.1% (sixth column) of the total 4.4% of variance explained in the model. In addition, dimension one accounts for 2.5% (third column) of the total variance and dimension two 1.8% of the total variance. The singular value (second column) presents the canonical correlation between the levels of variables and the respective dimension. Ultimately, the Chi-square statistic is testing a hypothesis whether total inertia is significantly different from zero. Here, the p-value (fifth column) is greater than 0.05 (or less conservative 0.1) indicating too high risk of committing Type I error of falsely rejecting the true null hypothesis (even despite the fact of confirming allocation of Porter's generic strategies in the positioning map as shown in Fig. 1 – the competitive scope along horizontal axis and the competitive advantage along vertical axis).

Hence, based on the combined results from Tab. I and Tab. IV according to which CCA first revealed significant canonical function between the set of 19 cultural variables and the set of market strategy variables it may be concluded that market strategy indeed relates to the business culture, however, not to the cultural groupings presented in the paper. The low statistical significance produced by CORA



1: Biplot of CORA displaying Porter's generic strategies (green circles) among segments (blue circles) using symmetrical normalization

may be due to several reasons. For example, firms lack consistency in pursuing only one market strategy or segments defined along business culture are not stable enough to form a strong basis for a strategy formulation or manufacturing firms have not succeeded yet in making-up a dominant culture that would be easily translated into the market strategy. All in all, the results suggest that market strategy is not adequately aligned to the company's culture.

CONCLUSION

The paper works on the assumption that business culture permeates organizations just like lifestyle and personal values permeate individuals (Jadczaková, 2010) and if the latter guides the people's actions and determines their attitudes business culture might well drive the firm's actions in a sense of market strategy choices. Consistent with this argument, it was investigated whether business culture might determine the context within which market strategy decisions are being made and, if so, whether culture-based segments do relate to specific market strategies.

As demonstrated, this study provided evidence that business culture may be thought of a possible trigger for market strategy selection. Yet at the same time only a limited relationship between cultural segments on one hand and the Porters' strategic types on the other hand were found. Reasons for this have been already discussed. However, prior to disregarding predictability of segments with respect to strategy adoption completely, there are still some hidden issues which should be first ruled out. For instance, the stability of segments is a factor which may be controlled by statistical analysis. More specifically, the use of factor analysis on a set of 19 cultural variables on a regular basis might help to identify those dominant values that play a major role in a cultural make-up. Furthermore, analysis of the composition and the magnitude of cultural values would allow the diagnosis of segments' stability as well.

The reason for regular monitoring is apparent. If business culture evolves at different rate than the way how a firm responds towards customers' needs in terms of strategy adoption, such delayed behavior may be considered as somehow 'anti-social' and might lead to a production of goods and services that are not in a line with these needs.

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