

Revisiting the Psychometric Properties of Market Orientation Framework in an Emerging Economy: a Case-Study of Botswana's Small Service Firms

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Abstract

While much empirical work has centered on market orientation, an investigation of the psychometric properties of Market Orientation (MO) scale items as adapted from Kholi and Jaworski,(1993), in the Botswana context has been under researched. A reliable scale with demonstrated content and convergent validity is developed in this empirical study and the impact of market orientation efficiency on economic and noneconomic performance of service firms is evaluated based on key informant data drawn from sampled service firms in Botswana. Top management emphasis, centralization, market turbulence, intelligence generation, dissemination and responsiveness, business performance, customer satisfaction, technological turbulence, market based reward system, and overall market orientation were found to be reliable and valid antecedents and consequences of market orientation. The study results using factor analysis approach, therefore offer one more robustness in the applicability of MO scale items among Botswana's small service firms by ensuring that managers use psychometrically valid scale items to generate, disseminate and respond to information with a view to improving performance of small service firms.

Keywords: Psychometric Properties of Market orientation, Factor Analysis Approach, Small Service Firms, Business Performance and Botswana.

1. Introduction

The development of coherent, robust and generalizable theory requires a base of well defined constructs (Summers, 2001). While much empirical work has centered on market orientation, an investigation of the psychometric properties of MO scale items as adopted from Kholi and

Jaworski, (1993), in the Botswana context has been under researched. This study therefore intends to investigate the reliability and validity of market orientation framework in Botswana. A reliable scale with demonstrated content and convergent validity is developed and the impact of market orientation efficiency on economic and noneconomic performance of service firms is evaluated based on key informant data drawn from sampled service firms in Botswana. Gilliam and Voss, (2013) postulated that if researchers expend the necessary resources to properly define constructs during early stages of research projects, this foundation will be strong and able to support expansive theories. Gilliam and Voss,(2013) concluded that construct definitions prevent scientific discussion from devolving into babel Thus, the process of construct definition is a critically important and complex task facing marketing researchers not only in developed world, but also in the developing economy.

2. Objective of the Study

To investigate the psychometric properties of prominent market orientation factors influencing the economic and non economic performance of small service firms in Botswana using Factor analysis Approach.

3. Literature Review

A scale is said to have content validity, if the scale items form a representative sample of the theoretical domain of the construct (Churchill, 1979; Bagozzi and Foxall, 1995). Babin and Svensson, (2012), thus identified the year 1979, as the year of breakthrough from the paradigm of single item structures and metric measures, as well as the lack of reliability estimates of used constructs in marketing research to a change towards the use of multi items structures and metric measures and reliability theory in marketing research of human perception, behaviour or phenomenon. After this time, the reliability concept became a routine part of the results sections of marketing research articles. Infact, Churchill,(1979), wrote about an emerging paradigm for developing measures of marketing constructs, while Peter,(1979),cited in Babin and Svensson (2012), presented a reliability review of psychometric basics and marketing practices. Indeed, many otherwise well executed projects fail to have the impact they should due to poor construct definitions (Churchill,1979).Bearden and Netemeyer, (1999),thus provided extensive reviews of numerous multi item structures and metric measures in extant marketing research literature that have considered the estimates of validity and reliability. Therefore, the goal of measurement development is to produce instruments that carry meaning and are useful for describing and explaining phenomena. This empirical study thus lend credence to the need for measurement development. Psychometricians consider three criteria in their assessment of the quality of measures. The first is the unidimensionality of the scale. This is concerned with the degree to which the items in the scale load on a single factor Gerbing and Anderson,(1988). This aspect of a measurement is important because, theory development and testing requires that a single idea be represented by the measure to allow for subsequent testing for correlations with other constructs or differences between groups. A second aspect of good measures is that they are reliable. This characteristic deals with the stability of the measures over time and the internal consistency of answers on measures containing multiple items, Rust and Cooil, (1994). This empirical study, thus examine the content validity, dimensionality,

coefficient alpha, with a focus on the coherence or interrelatedness of the psychometric properties of small service firms in Botswana. The third indicator of strong measures is validity. This is concerned with the degree to which the measure in fact represents the construct domain (Churchill, 1979). Thus, at the heart of repeatability and standardization are the measurement properties of reliability and validity, which this study intends to explicate.

Mowen & Voss, (2008); Rossiter, (2002), analogously postulated that some authors have suggested that researcher concentration on operationalisation and statistical analysis have distracted attention from construct definition. This assertion created the need for this empirical study among Botswana's small service firms. Gilliam and Voss, (2010), therefore posited that a contributing factor is the lack of understanding of an implementable construct definition process within the extant psychometric literature. Mackenzie, (2003), thus suggested that poor construct conceptualization and definition plagues many manuscripts submitted for review. Mackenzie, (2003), noted the impossibility of accurately specifying theoretical relations between two constructs that lack precise meanings. Summers, (2001), concluded that the development of coherent, robust and generalizable theory requires a base of well defined constructs. Hunt (1991) and Teas and Palan (1997) thus suggested the use of formalized language in definitions to reduce ambiguity and vagueness in psychometric competence. Contrastingly, Williamson, (1994), postulated that while the use of formalized language may facilitate some aspects of the construct definition effort, it introduces a number of problems that have prevented its widespread adoption. Rejecting this psychometric paradigm, Rossiter, (2002), suggested that being far more specific in regard to the time and place where the construct is applicable will aid in construct definition.

4. Research Methodology

The study employed a snowball sample of managers and business owners in the small service firm domain within Gaborone and its environs. The reason for opting for non-probability rather than probability sampling was that the sampling frame of the key informants was not available. In addition, the study was confirmatory in nature in order to improve the understanding of organizational market orientation behaviour in Botswana context. The final pool of small service firms to whom questionnaires was sent totaled 400. Eventually, only 249 (constituting over 60% response rate) usable questionnaires were returned by the respondents. The questionnaire was pretested prior to collecting data and respondents were asked to identify items they found unclear, ambiguous or confusing. As a result of the pretest, minor adjustments were made to the questionnaire. Data was collected between mid July 2012 to Mid October 2012. The service firms sampled included tourism firms (5.6%); transport firms (10.7%); financial services subsector (9.4%); consulting services (19.2%) and other services subsector accounting for (55.1%). The majority of the respondent personnel were managers, accounting for about 50% of the total. This suggests that most respondents were sufficiently experienced to be able to provide meaningful response to broader policy issues relating to market orientation. After comparing the responses of the early and late respondents, on a number of characteristics, no significant difference was found suggesting that the sample is free from response bias. The sample size and the response rate are consistent with related studies.

The questionnaire and scale measures (MARKOR Scale) were adapted from Kholi & Jaworski, (1993) constructs. The items in the questionnaire were measured with the aid of a Five point Likert type Scale. The internal antecedents were measured by items adapted from Jaworski & Kholi, (1993). External antecedents were adopted from Jaworski & Kholi, (1993) and Gray *et al*, (1998) respectively. Reliability analysis was conducted on all the multi items scales to check the internal consistency of the scales. This study adopted a cut off of 0.5 for Cronbach's Coefficient following Nunally (1978). Using 0.5 as the cut off is not without precedent. It has been adopted in related studies (Blankson & Stoke, 2002; Blankson & Cheng, 2005).

5. Results and Discussion

In order to ascertain whether the measures retained construct validity (i.e. measure what they are supposed to), an exploratory factor analysis using principal components and varimax rotation technique was conducted to examine the underlying dimension of MO construct. In determining the factors, common decision rules employed in empirical research was applied: minimum Eigen value of 1; KMO measure of sampling adequacy greater than 0.5 and Bartlett's test of sphericity are significant, which indicate that the items are appropriate for factor analysis. This analysis thus test for the distinctiveness of internal and external antecedents, overall market orientation, as well as economic and non economic performance constructs and validate the measurement models (See Tables 1-6 below). This empirical study thus exhibit psychometric equivalence by providing acceptable levels of reliability, variance extracted, and both discriminant and nomological validity.

All factor loadings included in this study were statistically significant at the 0.01 level and exceed the arbitrary 0.5 standard. Thus, these measures demonstrate adequate convergent validity. All of the cross-construct correlations were significantly different from 1.0, which suggests that discriminant validity was present. In general, these results provide support for construct validity for the measures included in this study. As displayed in the Tables 1-6 below, the estimated standard loadings ranged from 0.50- 0.92. These are above the accepted cut-off value of 0.50 (Teo & King 1996). Finally, all items loaded higher on their respective constructs than on others, thus providing strong support for discriminant validity. The validity of the scale therefore explicates the unidimensionality of the components of each scale (Gerbing & Anderson, 1998) with a principal component factor analysis. These findings thus reduce the plausibility of threat to validity in this study, by presenting a description of MO construct and explicative MO model, grounded on the marketing concept.

Table 1. Psychometric properties of market orientation awareness, intelligence generation and dissemination:

	Factor Loading	Eigen Value	% Variance	KMO	Bartlett's test	df
Factor 1: Market orientation awareness $\alpha = 0.71$, F-test = 51.029 $p < 0.01$		2.174	54.349	70.6 %	198.495	6 $p < 0.01$
We encourage customer comments and complaints because they help us to do better job	0.760					
We have a strong commitment to our customer's need	0.809					
We are always looking at ways to create	0.787					

customer value in our services						
We measures customer's satisfaction on a regular basis	0.568					
Factor 2: Intelligence generation $\alpha = 0.630$, F-test = 141.351 $p < 0.01$		2.948	59.948	66.9 %	469.771	45 $p < 0.01$
In this business, we meet with customers at least once a year to find out their future needs	0.609					
Individuals/Employees from our business interact directly with customers to learn how to serve them better	0.468					
We often talk with or survey those who can influence our end users 'purchases (e.g.,retailers,distributors)	0.653					
In our business unit, information on our competitors is generated independently by our business	0.589					
We collect industry information by informal means (e.g., lunch with industry friends, talks with trade partners).	0.632					
In this business, we do a lot of in house market research	0.594					
We survey our end users at least once a year to assess how they perceive the quality of our products	0.705					
We periodically review the likely effect of changes in our business environment (e.g., regulation) on customer	0.515					
Factor 3: Intelligence dissemination $\alpha = 0.60$, F-test = 89.409 $p < 0.01$		2.641	44.016	72.4 %	317.927	15 $p < 0.01$
In our business, we have business meetings at least once a quarter to discuss market trends and developments	0.703					
Marketing personnel in our business spend time discussing customers future needs with other employees	0.748					
Data on customer satisfaction are disseminated at all levels in this business on a regular basis	0.783					
If anything important happens to a major customer or market, the whole business knows about it in a short period	0.716					
A lot of informal talk in this business unit concerns our competitors' tactics or strategies	0.567					

Table 2. Psychometric properties of intelligence responsiveness and top management emphasis

	Factor Loading	Eigen Value	% Variance	KMO	Bartlett's test	df
Factor 4 :Intelligence responsiveness $\alpha = 0.55$, F-test = 116.689 $p < 0.01$		3.616	55.83	75.00%	688.427	91 $p < 0.01$
We periodically review our product development efforts to ensure that they are in line with what customers want	0.602					
When we find that customers would like us to modify a product, the business involved make concerted efforts to do so	0.503					
The different activities in this business are well coordinated	0.671					

Principles of market segmentation(market or products we are dealing with) drive new product development efforts in this business unit	0.556					
When we find that customers are unhappy with the quality of our service, we take corrective action immediately	0.545					
Factor 5 :Top management emphasis $\alpha = 0.730$, F-test = 22.147 p<0.01		2.238	55.953	69.20%	238.845	6 p<0.01
In this business, manager/owner repeatedly tell employees that this business survival depends on its adapting to market trends	0.809					
Managers/owners often tell employees to be sensitive to the activities of our competitors	0.790					
Managers keep telling people around here that they must gear up now to meet customers future needs	0.841					
According to managers/owners here, serving customers is the most important thing our business does	0.501					

Table 3. Psychometric properties of risk aversion, centralization, and formalization

	Factor Loading	Eigen Value	% Variance	KMO	Bartlett's test	df
Factor 6 :Risk aversion $\alpha = 0.53$, F-test = 3.439 p<0.05		1.736	53.403	60.0 %	99.413	6 p<0.01
Managers/owners in this business believe that higher financial risks are worth taking for higher rewards	0.554					
Managers/owners in this business like to take big financial risks	0.827					
Managers here encourage the development of innovating business strategies, knowing well that some will fail	0.784					
Formal business education is the key requirement of the owner/ manager in our business	0.753					
Factor 7: Centralization $\alpha = 0.880$, F-test = 12.328 p<0.01		2.947	73.669	78.2 %	602.255	6 p<0.01
There can be little action taken here until a supervisor approves a decision	0.743					
Even small matters have to be referred to someone higher for a final decision	0.911					
I have to ask my boss before I do almost anything	0.922					
Any decision I make has to be my boss approval	0.845					
Factor 8: Formalization $\alpha = 0.512$, F-test = 18.396 p<0.01		1.293	43.106	50.3 %	20.932	3 p<0.01
For most of the things in our business, it is within the authority of those(owner/manager), who are responsible for them to decide how they will be done	0.731					
The employees in this business are constantly monitored for rules violation	0.802					

Table 4. Psychometric properties of Market based reward system, interpersonal connectedness ,interpersonal conflict and competition

	Factor Loading	Eigen Value	% Variance	KMO	Bartlett 'test	df
Factor 9 : Market based reward system $\alpha = 0.782$, F-test = 7.135 p<0.01		2.420	60.492	76.8 %	265.436	6 p<0.01
Employees in this business get recognized for being sensitive to competitive moves	0.740					

Customer satisfaction assessments influence owner/managers pay in this business	0.847					
Formal rewards (e.g., pay rise, promotion) are forthcoming to anyone who consistently provides good market intelligence/information	0.789					
Salespeople's performance in this business is measured by the strength of relationships they build with customers	0.729					
Factor 10 : Interpersonal conflict $\alpha = 0.62$, F-test = 176.980 $p < 0.01$		1.878	37.564	59.0 %	122.742	10 $p < 0.01$
Most employees in this business get along well with each other	0.727					
Employees from this business feel that the goals of their respective business are in harmony with each other	0.669					
There is little or no interpersonal conflict in this company	0.515					
Factor 11 : Interpersonal connectedness $\alpha = 0.81$, F-test = 4.373 $p < 0.01$		2.532	63.304	76.0%	316.486	6 $p < 0.01$
In this business, regardless of their rank or position, it is easy to talk to anyone needed	0.752					
There is ample opportunity for informal hall talk among individuals in this business	0.771					
In this business, employees feel comfortable calling each other when the need arises	0.845					
People in this business are quite accessible to one another	0.812					
Factor 12 : Competition $\alpha = 0.77$, F-test = 45.422 $p < 0.01$		3.092	44.171	78.3 %	511.320	21 $p < 0.01$
We regularly monitor our competitors marketing efforts	0.763					
We frequently collect marketing data/information on our competitors to help direct our marketing plans	0.789					
Our salespeople are instructed to monitor and report on competitor activity	0.815					
We respond rapidly to competitors actions	0.744					
There are many promotion wars in our business.	0.588					
Price competition is a hallmark of our business.	0.592					
Our competitors are relatively weak	0.584					

Table 5. Psychometric properties of market turbulence, general economy, organizational commitment, esprit de corps and business performance.

	Factor Loading	Eigen Value	% Variance	KMO	Bartlett's test	df
Factor 13 : Market Turbulence $\alpha = 0.529$, F-test = 9.188 $p < 0.01$		1.894	47.347	67.8 %	110.611	6 $p < 0.01$
In our kind of business, customer's product preferences change quite a bit over time	0.717					
Our customers tend to look for new product all the time	0.767					
We are witnessing demand for our products and services from customers who never bought them before	0.616					

Sometimes our customers are price sensitive, but on other occasions, price is relatively unimportant	0.641					
Factor 14 : General Economy $\alpha = 0.647$, F-test = 74.412 $p < 0.01$		1.437	47.895	51.0 %	47.384	3 $p < 0.01$
The customers in our business are likely to be value conscious	0.820					
Our business is more responsive to customer needs in order to offer good value for money	0.831					
Factor 15 : Organizational commitment $\alpha = 0.62$, F-test = 173.461 $p < 0.01$		2.258	56.442	75.3 %	211.732	6 $p < 0.01$
The bonds between this business and its employees are weak	0.799					
Our employees have little or no commitment to this business	0.758					
Factor 16 : Esprit de corps $\alpha = 0.50$, F-test = 14.641 $p < 0.01$		1.715	42.874	63.6 %	83.485	6 $p < 0.01$
People in this business are genuinely concerned about the needs and problems of each other	0.710					
Working for this business is like being a part of a big family	0.749					
People in this business feel emotionally attached to each other	0.789					
People in this business view themselves as independent individuals who have to tolerate others around them	0.568					
Factor 17 : Business performance $\alpha = 0.901$, F-test = 14.691 $p < 0.01$		4.888	61.095	89.7 %	1233.140	28 $p < 0.01$
Is it very easy to get your money back in this business	0.583					
The profit of our business has increased	0.853					
We have remarkable sales growth in our business	0.844					
The market share (the market size in relation to that of the competitors) of this business has gone up	0.733					
The sales volume has increased	0.882					
The revenues of our business have increased	0.866					
The quality of our products/services has improved	0.549					
The financial position of our business has improved	0.862					

Table 6. Psychometric properties of customer satisfaction

	Factor Loading	Eigen Value	% Variance	KMO	Bartlett's test	d f
Factor 18 : Customer satisfaction $\alpha = 0.654$, F-test = 19.784 $p < 0.01$		2.341	59.009	71.2 %	217.220	15 $p < 0.01$
We have more loyal customers than competitors	0.666					
We often receive complementary phone calls/letters from our customers	0.722					
Our trade partners always praise us about our Product/service quality	0.664					
We hardly receive complaints about our product/service	0.595					
We generate new customers in our business on a regular basis	0.663					
Customers of this business are happy with our products/services and prices	0.639					

6. Conclusion and Recommendation

This study has examined the psychometric properties and the stability of the factor structure of MO scale items in Botswana among small service firms. The results demonstrate that MO scale items in Botswana have sound psychometric properties and a consistent factor structure.

Although further research is necessary to replicate present findings and provide additional evidence of the psychometric competence. The Botswana version of MO scale items is thus posited to be an excellent instrument for the assessment of performance of small service firms. The instrument therefore exhibits both conceptual and psychometric equivalence by providing acceptable levels of reliability, variance extracted and both discriminant and nomological validity. The instrument in this empirical study will thus contribute to theory development and business performance among small service firms in Botswana. From a managerial perspective, the MO scale can be used to evaluate small service firms level of MO efficiency as a baseline measure.

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