SOME METHODOLOGICAL INSIGHTS IN CONTEXT-STRUCTURE ALIGNMENT IN ORGANIZATIONS

Descriptors: Structural variables, contextual dimensions, multiple analyses of variance, organization theory

Introduction:

Most of the researches that aimed at investigating the relationship between context and structure have been conducted on bivariate basis. Woodward (1965) advocated her technological-imperative rationale without seriously taking into account the other contextual variables and by employing relatively limited number of structural variables. Hickson et al (1969) (hereafter referred to as the Aston Group) who conducted a study with the objective of testing the broad hypothesis that technology and structure are strongly related have done this on a bivariate basis. They investigated the relationship between the selected structural variables and each contextual dimension in an independent manner. They have tested the relationship between each contextual dimension and each structural element using product moment correlation. The Aston Group rejected Woodward's hypothesis that technology is a prime determinant of structure because they had found that there was a moderate correlation between technology and structure and at the same time the relationship is overwhelmed by the correlation with size. However, the Aston Group believed that technology influences structure in organizations in which the work flow operations represent the bulk of the organization activities. Also, one can notice that ownership as an important contextual dimension was not considered in those studies. Had the researches used more sophisticated statistical techniques, they could have arrived at more concrete conclusion about the relationship between context and structure in organizations. Most of the latter researches who worked a long the same line have adopted similar statistical technique in their work (Harvey 1968, Hage Aiken 1969, Zwermman 1970, Comstock and Scott 1977 Inkson et al 1970, Blau and Schoenherr 1971, Child and Mansfield 1972, Child 1973, Khandwalla 1974, Blau et al 1976, and Mohamed 2007).

The Problem

Most of the researches conducted on relationship between structure and context in organizations have been conducted on the bivariate basis rather than multivariate one, for example: technology-structure, size-structure and environment structure relationship. Even when some of these studies take into account more than one contextual dimension, the depth of the investigation have not gone beyond using regression and correlation- whether simple or multiple- analysis to find out the magnitude and the direction of the relationship between each contextual variable and the respective structural variables. Thus nothing can be inferred about the relative importance of those contextual dimensions in shaping the organizational structure. This raises a methodological problem that makes it difficult to establish concrete findings to be relied on in establishing a sound universal "organization theory".

The Objectives of the Paper

The structure contingency model assumes that organizational structure is usually constrained by many contextual dimensions. Thus, contradictory

imperatives of situation may require changes and alterations in organizational structure. For example: a situation where an organization is large and constrained to be more bureaucratic, and at the same time is located in a turbulent environment and therefore constrained to be more flexible and adaptive in its structural arrangement (Ranson, Hining and Greenwood 1980). This implies that organization scholars should think about the relative importance of the contextual dimensions in shaping organizational structure, and this could not be achieved using bivariate analysis e.g. correlation analysis.

The objective of this paper is to suggest a more sophisticated method for specifying the relative importance of the contextual dimensions in determining organizational structure.

The Proposed Method

The multivariate analysis is usually used to test the significance of the difference between more than two nominal variables, which contain more than two ordinal or interval variables. This analysis could be employed to test the significance of the difference among more than two structural profiles within each contextual dimension. The Aston's measures can be

used to operationalize the concept of structural variables. Each contextual dimension will be classified into more than one category. For example, "size" could be classified into three categories: relatively large size, relatively medium size, and relatively small size organizations. These three categories of size will constitute the nominal variables. The ordinal and/or interval variables will be represented by the structural variables. The greater the coefficient of the test is, the greater is the impact of the contextual dimension upon structure. Thus, the contextual dimensions can be ordered according to their strengths of impact upon the structure of the selected sample of organizations. Hence a generalization could be made about the relative importance of contextual dimension in structuring organizations.

By using the Multiple Analysis of Variance (MANOVA) hypothesis testing formula (Hair 1992), the research hypothesis could be stated as follows:

	U11		U12		U1k
	U21		U22		U2k
	:		:		:
	:		:		:
	:		:		:
	:		:		:
Ho:	:	=	:	=	:
	:		:		:
	:		:		:
	:		:		:
	:		:		:
	:		:		:
	Up1		Up2		Upk

The null hypothesis is (Ho) = all the group means vector are equal, that is they come from the same population.

Where “p” represents the means of the structural variables and “k” represents the category of the contextual dimension. The least contextual

dimension which scores the least significant level will be the most important determinant of the organizational structure.

The Multiple Analysis of Variance (MANOVA) presents the researcher with four criteria with which to assess multivariate differences across groups. The four most popular are:

Roy's Largest Root, Wilk's Lambada, Hotelling's Trace, and Pillai's Criterion (Hair

1992).The most basic distinction among the four measures is their assessment to the

differences across dimensions of the dependent variables. These tests or criteria can be utilized to find out the relative importance of contextual dimensions in structuring organizations. The structural variables are the dependent variable in this respect. The result of each test will give the significance level, as an outcome, for assessing the difference across the structural variables for the sub-scales of the contextual dimensions. The contextual dimension is deemed important for structure if the corresponding level of significance is < 0.05. The contextual dimension that

shows the minimum significance level across all the tests will be the most important one for determining structure.

Conclusion

Thus by using the multiple analyses of variance as a statistical technique and using the Aston's measures to operationalize both the structural and contextual dimensions, researchers will be able to find out the relative importance of the contextual dimension in structuring organizations. Cross-cultural studies also can be carried out with more reliable and valid basis.

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