





A RESEARCH REPORT

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SIZE- STRUCTURE RELATIONSHIP:

A FURTHER ELABORATION

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ABSTRACT

The present study of size-structure relationship is based on a homogeneous sample of 168 life insurance companies. Data were collected on three measures of size and four measures of structure. Extremely high intercorrelations among size measures (> .87) justify the use of only one of these in subsequent analysis of size-structure relationship. The results indicate this relationship to be highly significant but non linear. In general, the structure tends to increase with size but at a decreasing rate. These findings are interpreted in a framework of reversibleprobabilistic causality. The study also compares the size-structure relationship across small, medium and large organizations. The results in this regard point towards varying dimensionality of organization structure associated with organization growth.

SIZE-STRUCTURE RELATIONSHIP:

A FURTHER ELABORATION

INTRODUCTION

The relationship between organization size and organization structure has been a subject of continuing debate in the literature. A large number of studies provide evidence of a strong relationship between the two variables. Notable among these are the studies by Pugh et al. (1969), Hickson et al. (1969), Blau and Schoenherr (1971), Child (1973), and Blau et al.(1976). In contrast, there are others (Woodward, 1965; Thompson, 1967; Hall, 1972) which provide either a qualified or no support at all to the existence of size-structure relationship.

Three issues can be raised in respect to the existing literature on the subject, which may partly account for the conflicting findings. The first issue relates to the measurement of organization size. There are a number of measures of organization size such as number of employees, volume of sales, and net assets. These measures are likely to intercorrelate very highly with each other in the case of firms belonging to a homogeneous industry. For example, if size comparisons are being made among organizations producing steel products, their relative positions when judged on alternative measures of size are likely to be largely similar. If this is so, then any one of these measures could be legitimately used to study the relationship between organization size

and organization structure. However, a high degree of consistency among size measures is much less probable if firms in question belong to such divergent industries as manufacturing, retail, education and recreation. In this case, the use of a single size measure may produce biased results regarding the relationship between size and organization structure. It is in this respect that the existing literature on the subject presents an anamoly. Number of employees has been used as the only measure of organization size even though, in most studies, samples of organizations have been drawn from widely different industries. For example, in the Hall et al. study (1967), the sample of 75 organizations belonged to a large number of industries such as manufacturing, finance, retail, government, recreation, and education. A similar diversity is true in case of the Aston sample (Pugh et al., 1968, 1969) and the National sample (Child, 1973). Certainly, high intercorrelations among the various measures can justify the use of only one such measure (i.e. number of employees) in estimating the relationship between size and structure. However, most studies have not provided any information on these intercorrelations. And among those very few which do, the preceding reasoning seems to be strongly supported. For example, Child (1973) found a correlation of r = .31 between number of employees and net assets. He attributed the low value of the correlation to the fact that twenty-seven of the eighty-two organizations in his study belonged to two service industries - advertising and insurance -

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where the role of financial assets was not comparable with that of manufacturing concerns.. When the remaining subsample of manufacturing organizations was taken separately, the correlation between numbers employed and net assets rose dramatically to r = .86. High correlations have recently been reported by Azumi and McMillan (1975) in which case also the sample consisted of manufacturing companies only. This suggests that the empirical studies of the relationship between organization size and organization structure should be confined to samples drawn from homogeneous industrial groupings. If not, the results should be replicated using alternative size measures.

The second issue which can be raised in regard to the existing literature on the size-structure relationship deals with the question of study design. In addition to organization size, technology and environment have also been identified as being importantly related to organization structure (Woodward, 1965; Thompson, 1967; Lawrence and Lorsch, 1967). In view of this, empirical studies of size-structure relationship need to be designed so as to control for the effects of technology and environment. Absence of such a design may in fact cause conflicting results. For example, in the Woodward study (1965), although no relationship was found between size and structure in the total sample, evidence of such a relationship emerged when each technology group was considered separately. Two alternative strategies can be utilized in this regard. The first may be called the "sampling strategy" which consists of selecting companies largely homogeneous in the technology they use and in the

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environment they operate. Thus, companies belonging to one particular industry may be chosen. The other strategy is to select any group of firms while controlling for the effects of technology and environment through appropriate statistical designs such as multiple regression analysis, factor analysis and cluster analysis. As pointed out above, the data base of empirical studies of sizestructure relationship has generally consisted of companies from widely different industries which are likely to vary both in technology and environment. Despite this, only a limited number of studies of the size-structure relationship have employed appropriate statistical designs (e.g. Pugh, et al. 1969; Child and Mansfield 1972).

Finally, the existing literature has tended to place greater emphasis on examining the strength rather than the form of the relationship between organization size and organization structure. Both these issues may be closely inter-related in that examination of the form of the relationship may in fact help improve the estimate and understanding of the relationship itself. Blau (1970) suggests that size-structure relationship is likely to be non-linear. More specifically, he argues that structure differentiation will increase with size but only at a decreasing rate. If so, then logarithmic transformation of size data should yield significantly higher estimates of relationship with measures of structure differentiation. Only a few empirical studies (Blau and Schoenherr, 1971; Child, 1973) have presented comparative results, with and without logarithmic transformation. Others have either entirely ignored the issue or have only reported the results with logarithmic transformation, thus rendering it difficult to judge the nature and extent of non-linearity.

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THE PRESENT STUDY

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Nature

The present study of the relationship between organization size and organization structure is industry-specific; it is confined to In view of the multiorganizations in the life insurance industry. industry nature of most of the previously completed studies, a strong need exists for single industry studies to check for the transferability of conclusions from the general to specific pools of organizations and vice versa. More importantly, a single industry study may offer certain advantages over a multi-industry study. As noted earlier, total number of employees, or any other measure of organization size, can provide a more accurate basis of size comparisons among organizations drawn from one industry than from heterogeneous industries; this will be so because of the greater likelihood of higher intercorrelations among alternative measures of size in the former case relative to the latter. Again, companies from a single industry, particularly such as life insurance, are likely to be generally homogeneous in the technology they employ and the external environment in which they operate, thus minimizing the need to control these variables in estimating the relationship between organization size and structure. Finally, the present study also attempts to investigate more closely the form of the size-structure relationship. Specifically, it takes a contingency view implying that the nature and extent of relationship between size and structure will vary across small, medium and large size companies.

Sample and Measures

A list of all the U.S. life insurance companies (N=403) licensed for business in Minnesota in 1973 was obtained from the Insurance Division of the State Commerce Department. Keeping in view the general experience of previous studies with the questionnaire response rate, it was felt that this pool of companies might not generate sufficient data base for the present study. For this reason, a random sample of 20 percent (N=280) from the remaining population of life insurance companies in the U.S. was added to the initial list. A questionnaire was mailed to the Chief Executive Officer of each of these 683 companies. Completed responses were received from 168 companies, representing a 24.6 percent response rate; this constituted approximately 10 percent of the entire population of the U.S. life insurance companies in 1973.

Data were collected on three measures of organization size and four measures of organization structure. Table 1 describes the present sample in terms of means and standard deviations of these measures. The three measures of organization size were: (a) total

TABLE I about here

<u>number of salaried employees</u>; (b) <u>total assets</u>, and (c) <u>dollar volume</u> <u>of sales</u> which, in the case of life insurance companies, can be measured in terms of <u>annual premium income</u>. The size data reported by companies were verified from the records available from the Insurance Division of the Minnesota State Department of Commerce and the BEST'S Review, Life Edition, published annually by A.M. Best Company. The four measures **u**sed to collect data on organization structure were:

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TABLE I

Sample Description (N=168)

.

	Mean	• <u>S.D.</u>
Organization Size		
Number of Employees Premium Income (\$) Assets (\$)	1,080 144,497,100 816,742,800	4,633 609,757,100 3899,550,400
Organization Structure		
Span of Control	5.64	2.42
Functional Differentiation: No. of Functional Divisons	9.68	6.91
Vertical Differentiation: No. of Management Levels	3.76	1.60
Geographical Diversity: No. of States in which organization operates	30.26	16.70

(a) <u>executive span of control</u>, defined as the number of subordinates (regardless of their level but excluding assistants and secretaries) directly reporting to the Chief Executive, (b) <u>functional differ-</u> <u>entiation</u>, defined as the number of functional divisions in the organizations, (c) <u>vertical differentiation</u>, defined as the number of management levels in the deepest chain of command, and (d) geog-<u>raphical diversity</u>, defined as the number of states in which the company operates for business. Each company was also requested to provide a copy of its organizational chart which was later used to ensure the accuracy of the reported information.

Results and Findings

A. Relationship between Alternative Size Measures

Table 2 indicates the product moment correlations between the alternative measures of organization size employed in the present study. As can be seen, all the correlations are extremely high,

TABLE 2 about here

including when log transformation of data is performed. Thus an organization which has a large number of employees also tends to have a large amount of assets and large premium income (sales). The significantly high correlations between the three measures clearly justify the use of only one in testing the size-structure relationship. In order to ensure comparability with the previous studies, the number of employees was selected as the measure of organization size. It may also be pointed out that the above correlations are significantly greater than most of those reported in previous studies. This lends support to the assertion made earlier regarding

TABLE 2

Product-Moment Correlations between

Alternative Measures of Organization Size

(N≖168)

	Num Emp	ber of loyees	Prem Inco	nium ome	
Number of Employees	-	-	.97	(.96)	
Assets	.88	(.94)	•95	(.94)	

- NOTE I: Brackets contain the corresponding values of correlation coefficient with log transformation of the data.
- NOTE 2: All correlation coefficients are significant beyond the 1% level of confidence.

the relative magnitude of these correlations between a study based on one-industry sample and another based on a multi-industry sample.

B. <u>The Strength of Relationship between Organization Size</u> and Organization Structure.

Table 3 reports the regression results of structure variables on organization size. Since, each regression involved only one dependent and one independent variable, the R in the last column is identical with the product moment correlation between the two variables. As can be seen, all the correlations (or the R's) are

TABLE 3 about here

significant beyond the 1% level of significance. The same is true for the regression coefficients which are at least more than six times their respective standard errors. Child (1973: 170) has recently summarized the correlations results obtained in several previous studies. Two dimensions of organization structure appear to be common between these and the present study, which are functional differentiation and vertical differentiation. Correlations of these two dimensions with organization size are reproduced in Table 4. It may be observed that all the previous studies are based on much

TABLE 4 about here

smaller samples than the present study - a sample range of 7 to 82 organizations in previous studies compared to 168 in the present case. This has implications for the relative significance of the reported correlations. Nevertheless, all correlations are significant at

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TABLE 3

Regression of Structure Variables on Log Organization Size

(N=168)

Structure Variables	Constant	Coefficient (B)	Standard Error	R*
;				
Span of Control	2.37	0.67**	0.10	.47**
Functional Differentiation	-1.21	2.22	0.27	.54**
Vertical Differentiation	0.36	0.69**	0.05	.73**
Geographical Diversity	-3.38	6.86**	0.55	.69**

*

Identical with product moment correlation since regressions involved only one dependent and one independent variable.

** Significant beyond the 1% level of confidence.

TABLE 4

Product Moment Correlations of Selected

Structural Variables with Log Size

of Organization

		
ertical ifferentiation	unctional ifferentiation	tructure ariables
.65	.61	National Total ¹ Sample (N=82)
.63	.65	Study Mfg.1 Orgns. (N=40)
.67	.67	Aston Total ² Sample (N=46)
.77	. 75	Study Mfg. ² Orgns. (N=31)
• 8 2	. 84	Mfg. ³ Orgns. (N=9)
.74	.73	Labor ⁴ Unions (N=7)
.73	• 5 5	U.S. Emplmt. ⁵ Sec. Agency Study (N=53)
. 73	.54	Present Study (N=168)

- н Child, (1972, 1973).
- 2. Pugh et al. (1968, 1969).
- ω •

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Blau and Schoenherr (1971).

Warner and Donaldson, unpublished data.

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- Hinings and Lee (1971).

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least at the 5 percent confidence level, except for the Labour Unions study (N=7). Judged on the basis of absolute values of correlations, the relationship between organization size and the two structure dimensions appear to be somewhat stronger among manufacturing organizations than others. Also, there is a striking similarity between the correlations in the present study and the Blau and Schoenherr (1971) study both of which are based on samples which are relatively larger and drawn from a single, non-manufacturing industry.

The above evidence tends to strongly support the existence of a significant relationship between organization size and structure. However, the evidence so far presented has entirely consisted of zero-order estimates. Such estimates can be quite misleading because in their computation, the value of other variables are left completely free to vary. The relationship between organization size and a given measure of structure may be different from that indicated by the zero-order correlation between the two, because in part it may arise due to the association of each with one or more of the other structure variables. Infact previous research (Blau, 1972; Blau, et al. 1976) indicates that the effects of size on span of control may be concealed by the opposite effects of other structure variables on it thus pointing to the need for higher-order estimates in the analysis of size-structure relation-Following this logic, the relationship between organization ships. size and each measure of organization structure was reestimated while controlling for the effects of the remaining three structure

TABLE 5 about here

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TABLE 5

Selected Estimates of Relationship Between Log Organization Size and Organization Structure

<u>(N=168)</u>

.

		REGRESSION COEFFICIENT				
Structure Variables	В	B (with controls**)	%Change in B (2-1)	Beta	Beta (with controls**)	%Change in Beta (5-4)
	(1)	(2)	(3)	(4)	(5)	(6)
Span of Control Functional Differentiation Vertical Differentiation Geographical Diversity	.667 2.220* .694* 6.857*	.918* 2.494* .848* 8.207*	37.6 12.3 22.2 19.8	• 466* • 543** • 734* • 693*	.641* .610* .897* .830*	 37.6 12.3 22.2 19.8

* Significant beyond the 1% level of confidence.

** Controlling for the remaining three structure variables.

variables. Results of this exercise are presented in Table 5. As is clear, even after other variables are controlled, estimates in all cases continue to be significant beyond the 1% level of confidence. In fact, estimates with controls are somewhat greater than without them. The largest difference appears in the relationship between size and span of control which is quite consistent with the findings of previous studies (Blau, 1972; Blau et al. 1976).

C. <u>The Form of Relationship between Organization Size</u> and Structure.

Although the preceding analysis points to the existence of a close relationship between size and structure, the question of its form (linear vs. non-linear) still remains to be answered. Nonlinearity implies that the rate of change in organization structure associated with a given change in size varies across the range of observed values of size. Previous studies (Blau and Schoenherr, 1971; Child, 1973) have accepted improvements in size-structure correlations resulting from the use of log transformation of size as an indication of non-linear relationship. Equal changes on logarithmic scale represent equal percentage changes in the variable, as opposed to equal changes on an arithmetic scale. Thus the use of logarithmic transformation implies that a given percentage change in size results in the same change in organization structure, regardless of the level of size. Translated in absolute terms, it indicates a decelerating relationship between organization size and structure measures; the differentiation in structure increases with expansion in organization size but only at decreasing rates. Table 6

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shows the difference in correlations between organization size and organization structure, with and without log transformation of size. Not only are the correlations highly significant, the use of log size dramatically improves the results - three of the four correlations increasing more than 100 percent. This reinforces

TABLE 6 about here

the conclusions of previous research (Blau and Schoenherr, 1971; Child, 1973) that the form of relationships between organization size and various measures of organization structure are perhaps non-linear.

In order to further explore the nature of these relationships, the sample of 168 organizations was subdivided into three parts based on the size variable: a small sub-sample consisting of the bottom one third of the organizations, a medium sub-sample consisting of the middle one third of the organizations and a large sub-sample consisting of the top one third of the organizations. Table 7 shows the

TABLE 7 about here

size-structure correlations within each of these sub-samples. A number of observations can be made on the basis of these data. As a first step, a comparison can be made between size-structure correlations and log size-structure correlations in the three sub-samples. It reveals that in ten out of the twelve possible comparisons, the correlations either do not change at all or do so only marginally. In the remaining two cases - correlations of size with vertical

TABLE 6

Product-Moment Correlations Between Organization Structure: and (1) Organization Size, (2) Log Organization Size (N=168)

Organization Size	Log Organization	% Change in Correlation (2-1)
(1)	(2)	(3)
.18	. 47	161.1
.22	.54	145.5
• 5 3	.73	37.7
.25	. 69	176.0
	Organization Size (1) .18 .22 .53 .25	Organization Size Log Organization (1) (2) .18 .47 .22 .54 .53 .73 .25 .69

All correlations are significant at or beyond the 1% level of confidence.

TABLE 7

Product-Moment Correlations Between Organization Structure and (1) Organization Size, (2) Log Organization Size in Small, Medium and Large Sub-samples

Structure Variables	Small Sub-sample (N=56)		Medium Sub-sample (N=56)		Large Sub-sample (N=56)	
ý	Size	Log Size	Size	Log Size	Size	Log Size
	(1)	(2)	(3)	(4)	(5)	(6)
Span of Control	• 35*	• 35 [*]	.06	.09	.14	.16
Functional Differentiation	.52*	.55*	.12	.14	.10	.19
Vertical Differentiation	. 45*	.41*	. 23**	.22**	.63*	.78*
Geographical Diversity	.51*	.51*	• 5 2 *	.54*	.30*	.49*

* Significant beyond the 1% level of confidence.

** Significant at the 5% level of confidence.

differentiation and geographical diversity in the large subsample - the use of logarthmic transformation of size does appear to improve the estimates. But even here, the differences are not statistically significant. This is in marked contrast to the situation at the aggregate sample level, the results relating to which were reported earlier in Table 6. Thus, the assumption of linear relationship between organization size and structure appears to be more valid for each of the sub-samples but not so for the total sample. If it is true, it follows that the size-structure relationship must significantly vary across the sub-samples so as to exhibit non-linearity at the aggregate level.

The data in Table 7 can be utilized to assess the direction and the level of differences in the size-structure relationship between the three sub-samples. The direction of differences appears to be similar in three of the four cases, i.e. correlations of size with span of control, functional differentiation and geographical diversity. In all three cases, there is a tendency for the correlations to be generally higher in the small sub-sample relative to the medium and large sub-samples, the differences in correlations between size and functional differentiation being statistically significant also. A somewhat different picture emerges as far as the relationship between organization size and vertical differentiation is concerned. Although, differences in these correlations are statistically significant, their general direction seems to be just the opposite to that true in the other three cases. The relationship between size and vertical differentiation is significantly higher in the large sub-sample relative to the small and medium sub-samples. In fact, the correlation is the

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lowest in the medium sub-sample. This indicates a more complex form of non-linearity than what seems to be true for the relationship between the other three structure variables and organization size.

Finally, Table 7 also points to another important difference in the size-structure relationship between the small, medium and large sub-samples. The number of significant relationships between organization size and the various measures of organization structure appears to be larger in the small sub-sample relative to the other two sub-samples. This is evidenced in the fact that all four dimensions of organization structure are significantly correlated with organization size in the small sub-sample. In contrast, only two dimensions of organization structure are found to be so in each of the other two sub-samples. Although the two dimensions involved are the same - vertical differentiation and geographical diversity the relative strength of their relationships with size reverses between Thus, the correlation between size the medium and large sub-samples. and geographical diversity is more significant in the medium subsample, whereas the correlation between vertical differentiation and size is so in the large sub-sample.

DISCUSSION

The present study examined the size-structure relationship on the basis of data from 168 life insurance companies. The results of the study point to a close relationship between the two variables - a finding consistent with that of previous research studies (Pugh et al., 1969; Hickson et al., 1969; Blau and Schoenherr, 1971;

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and Child, 1973). Of course such cross-sectional studies, including the present one, can only establish relationship and not the causality. The latter has to be inferred from a theory which generates a dynamic model about changes over time. In this respect, a diversity of opinion appears to exist among organization theorists. Blau (1970) for example, has suggested that organization structure is a consequence of organization size whereas Hall et al. (1967:912) have posited the The present study however, takes a somewhat different opposite. view of causality than either of these. First, it suggests reversible causality between size and structure in that both can be the cause and effect of each other. Second, the present study argues that the causality involved in the size-structure relationship is probabilistic rather than deterministic. Both these conjectures are explained below.

The controversy over the direction of causality appears largely to stem from whether structure or size is viewed as the decision variable. Thus, if organization structure is considered in that role, a logical case can be made for it to be the cause and size to be the effect. Adam Smith (1937), as early as in 1776, explained the advantages that an organization could derive from practising division of labour of which organization structure is simply an application. Division of labour provides scope for job specialization which in turn can lead to improved job performance and increased organizational efficiency. Smith also pointed out that the extent of division of labour in an organization is limited by the size of the market for its products. In order that the organization can create specialized jobs, sufficient volume of work should be available

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to provide the necessary workload to each job incumbent. The larger the market, the larger the volume of available work and therefore the larger the possible extent of division of labour. Given this reasoning, it is clear why an organization may need to expand in size if it decides to create a more differentiated structure. Viewed 'in this manner, changes in organization structure appear as the cause of changes in size. Similarly, it is plausible for causality to run in the opposite direction, if size instead of structure, is considered as the decision variable. Several explanations exist as to why organization size and its growth may be an important decision variable, particularly in companies characterized by separation between ownership and control (Baumol, 1959; Morris, 1964; Starbuck, 1965). Expansion in organization size is likely to create pressure for increased differentiation in organization structure. It is so because of the increased complexity and multitude of activities generally associated with organization growth and the limited capacity of the individual to handle these. Sub-division of tasks and responsibilities provides a mechanism to cope with the emerging complexities of an expanding organization. It is in this sense that changes in organization size can be regarded as the cause of changes in organization structure.

The controversy over the direction of causality between size and structure can be resolved on the basis of above discussion. The controversy arises because either size or structure is taken as the decision variable. Instead, it appears more reasonable to expect both of these to be important decision variables in an organizational setting. If so, then reversible causality rather

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than one-way causality would exist between size and structure. In fact, one can extend this reasoning a step further and suggest a mutually reinforcing relationship between the two variables. Expansion of size can cause and facilitate a more differentiated structure. Such a structure, in so far as it is effective, will increase organizational efficiency and thus release more resources for further expansion of size. Thus, size can cause structure which in turn can cause size and so the interaction may continue.

The present study proposes causality between size and structure to be not only reversible but also probabilistic. Ackoff (1962:17) observes that causality has been frequently treated ambiguously in science in that its nature - deterministic or probabilistic - is seldom specified. This is also true of the literature dealing with causality between size and structure. Thus, when size is proposed to be the cause of structure, or vice versa, it is not made explicit whether the cause-effect relationship is deterministic or probabilistic. Deterministic causality implies that a given phenomenon X is both necessary and sufficient for the occurrence of another phenomenon Y. Thus, whenever X occurs , it is always followed by Y. Probabilistic causality, on the other hand, implies that X is only a necessary but not a sufficient condition for Y. In this case, when X occurs, Y may or may not follow, depending upon the presence or otherwise of some other phenomenon, 2. Put differently, it means that joint presence of X and Z is necessary for Y. In terms of this terminology, the size-structure relationship can be categorized as being probabilistic rather than deterministic. Organization size can cause organization structure, or vice versa, provided some other condition is jointly satisfied.

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The question then is to specify this condition. An organization can be viewed as a transformation system with certain given goals such as high levels of efficiency, growth, profit and employee welfare. It attempts to transform "inputs" into "outputs" in such a manner as to achieve a weighted sum of these goals. Organization size (scale of operation) and structure are integral parts of the transformation process. Variations in these two parts will have implications regarding the effectiveness of the process, i.e. the extent to which the process is able to accomplish the organizational goals. It is this effectiveness of the transformation process which is being specified here as the "other" necessary condition for a causal relationship between size and structure. More specifically, changes in size can produce changes in structure, or vice versa, if this interaction is expected to render organization more effective in achieving its goals. If not, either of the variables can change without necessarily causing a change in the other.

The above hypothesis of probabilistic causality seems to be supported by another finding of the present study. This relates to the non linearity in the size-structure relationship. One method by which the present study examined the nature of relationship was to recompute the correlations between size and the four measures of structure, by transforming the former into logarthmic form. The correlations between size and three structure measures, i.e. span of control, functional differentiation and geographical diversity, were found to markedly improve; the correlation between size and vertical differentiation improvedonly marginally. This finding indicates a decelerating relationship between size and structure.

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More specifically, span of control, functional differentiation and geographical diversity tend to increase with expansion in organization size but only at decreasing rates. Blau (1970) has explained the decelerating relationship in terms of diminishing returns which arise due to co-ordination problems besetting large and differentiated organizations.

The present study further explored the non-linearity in sizestructure relationship by dividing the total sample into three subsamples consisting of small, medium and large organizations respectively. A comparison of correlations between size and structure across the three sub-samples reveals an interesting pattern. A11 four correlations were found to be significant in the small subsample whereas only two each were so in the other two sub-samples. The two structure measures significantly correlated with size were the same in both the medium and large sub-samples; geographical diversity and vertical differentiation. Of these, however, the correlation of size with geographical diversity was more significant in the medium sub-sample while the one with vertical differentiation was so in the large sub-sample. This contrasting pattern of correlations is perhaps suggestive of varying dimensionality of organization structure associated with organization growth. It can be argued that rapid expansion in size of a small organization is likely to be associated with multifacet bureaucratization of its structure. For example, such an organization may tend to become simultaneously more differentiated on a variety of dimensions such as horizontal, functional, vertical, and spatial. After the organization attains a fair size, judged by its industry standard, further

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expansion in its size may be associated with increases in structure differentiation on a limited number of dimensions only. Thus, in terms of present study, structure of such an organization will tend to become geographically, and to smaller extent, vertically more differentiated. Finally, when the organization is large, further expansion in its size will be associated with most significant increases in vertical differentiation. An explanation of why vertical differentiation may continue to increase with expansion in size may lie in executive motivation. Normally, organizations attempt to preserve compensation differentials between adjacent levels of management. Also, organizations are likely to face competitive labour markets for executive talent at the lowest point(s) of entry in the hierarchy. This may necessitate the organization to pay at least minimum (competitive) salary levels to be able to hire and retain personnel in the entry level jobs. Given that the policy of a minimum salary at the lowest management level and of maintaining salary differentials between adjacent management levels exists, it follows that the executive salaries at the top become a direct function of the number of management levels in the hierarchy. The larger the number of such levels, the higher the executive salary at the top (Simon, 1957; Agarwal, 1975). Thus self interest may dictate top executives to pursue a policy of creating more levels in the organizational hierarchy.

SUMMARY

The present study examined the size-structure relationship based on a homogeneous sample of 168 life insurance companies. Three major findings of the study are as follows. <u>First</u>, extremely

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high inter correlations were found among alternative measures of organization size, the average correlation being r = .94. This clearly justifies the use of only one measure of size in subsequent empirical analyses of size-structure relationship. Such a justification will not exist if the inter correlations among size measures are low. This may be the case in studies based on samples of organizations with widely heterogeneous industry membership. If in fact this is true, it points to the need to replicate the empirical results by using alternative measures of size. Second, the results indicate a highly significant relationship between organization size and structure. The present study has interpreted this finding in a framework of reversible-probabilistic causality. Finally, the present study also shows the size-structure relationship to be Implicit in this is the notion of limits to structure non-linear. differentiation associated with organization growth. These limits tend to appear sooner in case of span of control, functional differentiation and geographical diversity than in vertical differentiation. Needless to say, these are only tentative hypotheses which need to be tested in future research studies.

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