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An Assessment on Analyzing the Effects of the Relationships Between Size and Structure in Organizations

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ABSTRACT: *The relationship between size and structure in organizations is one of the most fundamental discussions and research fields in administration. The impact and interactions of an organization's size on the structure and its relationships with complexity and administrative components should be considered. Besides, comprehending the size variable related to the complexity and administrative component concerning organizational size's structural properties' effects will pave the way for understanding other organization's structural features. The study primarily explains the effect and importance of the relationship between organizational size and complexity and administrative component variables addressed as structure and sub-components. In this perspective, the study focuses on the relationship between the relative organizational size and structure at the conceptual level with other organizational characteristics such as complexity and administrative component at the total organizational level. It addresses organizational size as the primary variable and analyzes the relationships between structure and complexity and administrative component variables on a contextual basis. Per the research conducted in the organizational literature, we observed that analyzing the relations between size and structure is a controversial issue. However, we identify that the size variable is considered the primary variable in organizational analyzes in general, and it is relatively different from other components.*
KEYWORDS: *Organization, Size, Structure, Complexity, Administrative Component*

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I. INTRODUCTION

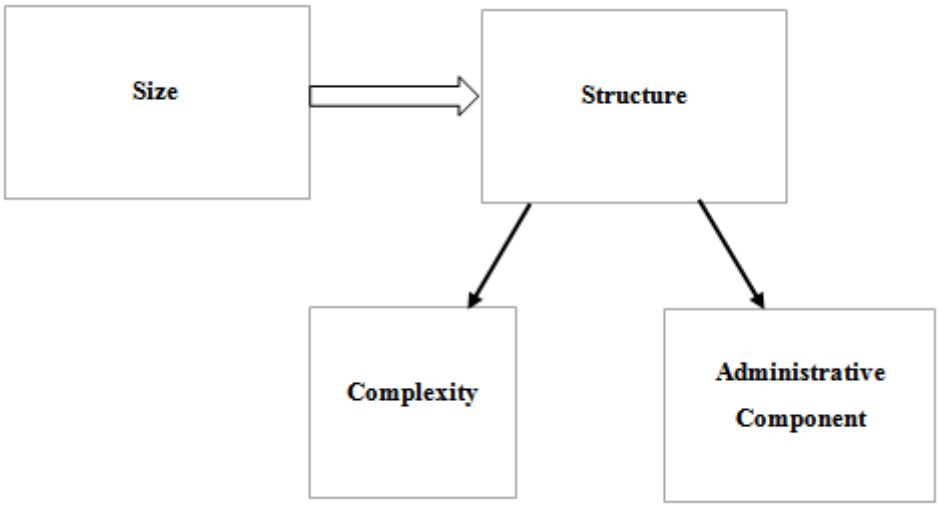
We observe the relationship between structure and size in organizations as a usual challenge in organizational research. The organization can be expressed as a system of relationships between differentiated level activities carried out by community units. Per struggle relations between the community units, the organizations' structural characteristics should be influenced by the population size in the environment in which they operate. Therefore, size is contained in each taxonomy of group characteristics and is associated with goals, effectiveness, succession, and job satisfaction in the work of formal organizations in general (Campbell and Akers, 1970: 435). There are assumptions that the organization's size makes a difference in other structural features. In some of such assumptions, Caplow (1957) and Grusky (1961) argue that large organizations are more complex and formalized than small organizations by definition. In other assumptions, Blau and Scott (1962), Zelditch and Hopkins (1961) suggested that size may not be such a critical factor. However, we observe that researchers who think that size may not impact the structure do not question the relationship between size and other structural components. In this respect, we can say that a common consensus exists that size influences the structure in general and that no consensus on the relative importance of size concerning other aspects of the organizational structure exists (Hall, Johnson, and Haas, 1967: 904). Some specific structures owned in organizations can enable special services and are, therefore, limited to various types of members of particular organizations. Such an emerging situation can provide any organization a maximum size in any area (Tsouderos, 1955: 209).

We consider that the organization's size is a critical variable that affects design and control and analyzes the bureaucratic character levels that will occur as organizations grow. In this context, some research has indicated that large organizations are more formal, and the reason for such emergence is the need for written rules and procedures to control a large number of employees and departments in large organizations (Daft, 2015: 465). Besides, per organization size being a critical variable, Blau and Scott (1962) noted that structural differentiation results from expanding size. However, we can note that Blau and Scott (1962) proposed the temporal sequence or causality, that is, the situation in which the expanding size produces more significant differentiation, is open to examination and questioning (Hall, Johnson, and Haas, 1967: 912).

A more precise understanding of the size factor, about the administrative component, requires a systematic understanding of the organization's structural features concerning the effects of size on structural properties. Blau and Scott (1962: 227) brought about, in particular, that complexity as a structural feature and the administrative component can be a variable that intervenes on size and can also be directly influenced by

organizational size (Campbell and Akers, 1970: 435). Figure 1 displays the size and complexity, and administrative component variables as sub-components of the structure and the structure. Overall, the study addresses relationships between these variables, such as size, structure, complexity, and administrative component.

Figure 1: Organizational Size and Structure Relationship



The study primarily explains the effect and importance of the relationship between organizational size and complexity and administrative component variables addressed as structure and sub-components. The study focuses on the relationship between the relative organizational size depending on the supportive component and structure at the conceptual level with other organizational characteristics variables such as complexity and administrative component at the total organizational level.

II. CONCEPTUAL FRAMEWORK

2.1. Size

Research in which organizational size is considered a variable and analyzed is based on two general assumptions. The first of these assumptions is the research that considers the organizational size and organizational structure, and components as an ineffective factor. The second assumption is argued by the Blau and Schoenherr (1971), Chapin (1951), Grusky (1961), Haas, Hall, and Johnson (1963), Hawley, Boland, W. and Boland, M. (1965), Meyer (1968), Pugh, Hickson, Hinings, Macdonald, Turner and Lupton (1963). In this assumption, research in which the size variable is considered the primary factor in organizational analysis and the structure and other sub-components are built on the size stand out (Keçecioğlu, 2008: 182). This study relies on the second assumption of such components. Accordingly, we address the organizational size as the primary variable and analyze the relationships between structure and complexity and administrative component variables in the context. Addressing size as a fundamental variable provides an opportunity to obtain results concerning various other variables at the organizational level. Therefore, we can say that a truly comprehensive organizational analysis should allow feedback loops and interrelationships between size and other variables (Aldrich, 1972: 33).

Size expresses the total number of participants in the organization in general. Size is generally measured by the number of employees in corporate organization research. This measure (number of hired staff) was applied to voluntary associations in the same way by Haas et al. (1963). The recruited employees consist of the total of the organizational participants within the company groups. However, the organization's size is measured by the total number of members who pay a regular subscription in voluntary associations (Campbell and Akers, 1970: 437). In this context, research findings support the proposition that as the total organization size increases, the supporting component's relative size increases. Reviewing relevant findings specifically for industrial firms, Dubin (1958) concluded that "larger companies need proportionately more people to manage their business." In his historical analysis of industrial firms in the United States and the United Kingdom, Melman (1954) found that the increasing proportion of staff is significantly related to management and administration. This increase has accompanied growth well known in business organizations of all sizes. Bendix (1956) found a similar historical trend in France, Germany, and Sweden. However, data from Melman (1954) and Bendix (1956) both represent national totals but do not directly address varying organizational sizes (Haas, Hall and Johnson, 1963: 10).

Empirical research employing size as the primary variable has also concluded quite differently and contradictorily. Chapin (1951) and Tsouderos (1955) argued that increasing size is associated with increasing bureaucratization. However, Hall (1963) noted that size is not a critical factor in identifying the degree of bureaucratization in organizations. Accordingly, per the limited scope of such research, we can observe that some assumptions about size should be systematically analyzed before arguing that an organization is extensive as an indicator of other critical structural features (Hall, Johnson, and Haas, 1967: 904). In this context, the proliferation of formal organizations, one of the most striking features of the contemporary Western world, reveals the necessity of investigating the effects of size on their own. Therefore, research on the size relationship of administrative components with total inclusive organizations should inform about the impact of size on the organizational structure's nature (Terrien and Mills, 1955: 11). Table 1 comprehensively displays different types of organizations related to the organizational size variable. Accordingly, Table 1 illustrates their positions with different size values in various organizations related to organizational size, which is one of the study's fundamental variables. We assess relative organizational size values in various organizations per organizational types at very different levels in this context. Table 1 illustrates such diversity.

Table 1: Different Types of Organizations Related to the Organizational Size Variable

Organizations	**Size (Total Number of Staff in the Organization)**
Fabric Production and Sales Company	1250
Private Country Club	101
Municipal Airport	75
Farm Marketing Cooperative	423
Oil Company Marketing Department	588
Transport company	1691
Grand Hotel	412
National State Organization	25
Chain Food Store Organization	1800
Great Public Service	4406
Health Insurance Organization	125
Paint Production and Sales Company	145
State Regulatory Authority	160
Special Thematic Universities	134
Electronic Companies	450
Local trade union	10
Big Bank	800
District Political Organization	85
Private Charity and Social Aid Organization	132
Law Enforcement Agency	638
State Postal Authority	1972

Source: Haas, Hall and Johnson, 1963:13

Organizational size can be utilized to measure the number of employees; for example, the number of customers served, sales, or production volume instead of assets at the organizational level. The organization's total number of employees is considered the fundamental value of the organizational size measure. At this point, which size measure should be used becomes essential, especially in cross-sectoral research (Kimberly, 1976); however, it is easier for research limited to a single industry (Blau and Schoenherr, 1971). In particular, when working in a single industry, the operations' scale is likely to be proportional to the assets managed. The correlation between the total number of employees and assets in the organization, the correlation between the number of managers and assets, the correlation between sub-units and assets can guide the explanation of size in research involving organizational size (Haveman, 1993: 33-34).

2.2. Structure

The organizational structure includes three key elements. The first is to establish formal reporting relationships. The second is to identify how individuals are grouped and formed sections and form the organization by grouping. The third includes designing systems that ensure integrity by making communication, coordination, and intensive effort between departments and organizational structure (Daft, 2015: 56). In general, an organization's structure is expressed as the sum of various ways in which the workforce is divided into tasks at a

certain level, and coordination between them is reached (Mintzberg, 2015: 2). Accordingly, Table 2 illustrates the structure variable's fundamental elements at the point of the organizational structure's systematic execution.

Table 2: Organizational Structure Elements

Organizational Structure
Mutual Harmony
Direct Control
Standardization of Work Processes
Standardization of Products
Standardization of Skills

Source: Mintzberg, 2015:3

Mutual Harmony: The central purpose or primary task of an organization manifests itself in a workflow. The model in which this workflow or system efficiency is regulated constitutes the organization's production or technical subsystem (Astley, 1985: 203). Therefore, mutual harmony is achieved simply via informal communication. Those whom do the work control it and the knowledge begins as the work progresses (Mintzberg, 2015: 3).

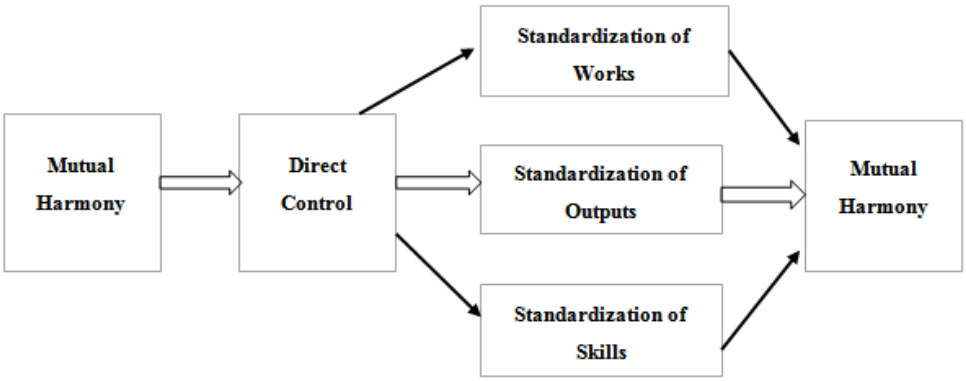
- Direct Control: Direct control relies on issuing orders via a chain of command, forming a familiar administrative control prototype. Its defining characteristic is the direct personal supervision of subordinates. Work is regulated by continuous, direct, and essentially temporary superiors' instructions (Astley, 1985: 215-216). Besides, as the organization grows, a second coordination mechanism usually comes into play. Accordingly, coordination in direct supervision is provided by an individual taking responsibility for other employees' work. They perform it by giving them instructions and monitoring their actions (Mintzberg, 2015: 3).

Standardization of work processes: Standardization of work processes usually means that business processes are standardized when the work's content is determined or scheduled. Standardization is conducted on the standardization of employees' skills, work processes, and outputs. It should be performed by whoever coordinates the work to transform business processes into a standard structure. There is a structural feature in which the workflow is standardized (Mintzberg, 2015: 3).

- Standardization of Outputs: The stage of standardizing the output is conducted when the dimensions and performance of the output (product) obtained from the production process are specifically identified and standardized (Mintzberg, 2015: 6). However, the administrative density, which is the ratio of the total employee time devoted to administrative activities, has been activated in various ways in the standardization phase of the outputs (Astley, 1985: 212).

- Standardization of Skills: At this stage, when the type of training required to complete the targeted work is standardized, knowledge and skills reach a standard structure. However, coordination will be required to control and coordinate the work during the process (Mintzberg, 2015:6).

Figure 2: Coordination of Organizational Structure Elements



Source: Mintzberg, 2015:7

Figure 2 displays the coordination of organizational structure elements. As the workflow in organizations becomes more complex over time, preferred coordination mechanisms will begin to differ in the process. A significant group of relationships at the organizational level emerges in the specialization or specific labor area division in this context. While the number of departments is not about size, the performance of organizational activities can be achieved by departmentalization, regardless of organizational size, relying on the internal differentiation patterns. In this perspective, as the organization's size grows, it can be included in more specialties

per the existing department structure (Hall, Johnson, and Haas, 1967: 911). The mutual relations between organizational growth and structural dimensions have been described per the model's framework. Accordingly, the organizational structure dimensions were addressed in different ways in stages. Much significant research on the bureaucratic structure has associated their findings with the organizational size, which Weber (1947) observes as the primary accompanying variable to bureaucratization. Therefore, the focus is on a comprehensive set of structural dimensions divided into four categories on bureaucratic organizations' size and structure. These are workflow interdependence, hierarchical form, administrative density, and control mechanisms. The interrelationships between organizational structure and their mutual relationships with organizational size are integrated into an evolutionary bureaucratization model. Table 3 illustrates the model (Astley, 1985: 201).

Table 3: Mutual Relations Between Organizational Size and Structure

Organizational Structure Dimensions	**Growth Stages**		
	I	**II**	**III**
Workflow Interdependence	Mutual	Sequential	Accumulative
Hierarchical Format	Long	Short	Flat
Administrative Intensity	Increasing	Decreasing	Decreasing
Control Mechanisms	Simple	Technical	Bureaucratic

Source: Astley, 1985: 202.

The interrelationships between organizational size and structure displayed in Table 3 express that organizational structure dimensions can be explained gradually depending on organizational size criteria. In this context, three organizational growth stages, which are generally summarized in Table 3, are derived, and a formulation of the propositions explaining the transitions between these stages has been created. To Kimberly (1976), size is utilized as a basis for distinguishing three stages of growth and should be considered not only as a determinant of structure but also as a result of a structure. Thus, organizational size growth can accompany them without directly causing structural changes (Astley, 1985: 202). However, Chandler (1962), Stopford (1968), and Scott (1971) proposed the stage model approach in organizational growth (Keçecioğlu, 2008: 195). Accordingly, Chandler (1962), Stopford (1968), and Scott (1971), who proposed a gradual model of organizational growth, observed that it requires a structural change in evolutionary development (Astley, 1985: 202).

2.3. Complexity

The importance of complexity as a variable in organizational analysis has been emphasized by Zelditch and Hopkins (1961). Accordingly, size alone is not considered as a critical characteristic of organizations. However, organizational analysis is complex, which appears to be significant, and is often referred to as a different dimension. Blau and Scott (1962) emphasized the centrality of complexity. Official organizations are usually substantial and complex, and some researchers have referred to them as large-scale or complex organizations, accordingly. Besides, while there may seem to be a consensus that the degree of complexity of an organization is vital in organizational analysis, the existence of limited initiative to operationalize the concept of complexity must be considered (Hall, Johnson, and Haas, 1967: 905).

In general, it is suggested that the degree of interior segmentation of complexity is identified by the number of separate parts of the organization. Also, they observe that complexity is not one-dimensional but can take various forms within an organization, and general and specific division of labor, hierarchical differentiation, and spatial distribution are expressed as different dimensions of complexity (Campbell and Akers, 1970: 438). To Hage (1965), complexity in an organization is measured by the number of professional specialties involved and each required training time. Therefore, as the number of professions increases and the duration of training required increases, the organization becomes more complex (Hall, Johnson, and Haas, 1967: 905). Addressing complexity in a multidimensional way presents that the dimensions employed will vary per the analyzed organizations' structure at the conceptual level. In this perspective, it will be useful to distinguish between horizontal and vertical complexity (Campbell and Akers, 1970: 438).

Pugh, Hickson, and Hinings (1969) provided a broader perspective on complexity in discussing organizational structure components. It seems that the configuration concept used by the authors is closer to the structural complexity issue, accordingly. Components of this configuration (structural complexity) include vertical and horizontal control intervals, segmentation criteria, and the number of positions in various segments (Hall, Johnson, and Haas, 1967: 905). Per the complexity distinction, horizontal complexity refers to lateral differentiation of functions at all levels of authority in institutional organizations, in which a certain level of differentiated activities and divisions are contained. Besides, vertical complexity means the extent of differentiated depth or organizational penetration below the national level in the most inclusive way (Campbell and Akers, 1970: 438). Per such features, the dimension of complexity is utilized as a vital sub-dimension determinant in defining modern organizations'

characteristics and distinguishing structural features (Keçecioğlu, 2008: 188). Complexity is at the conceptual level consisting of the degree of internal segmentation, the division of labor, the number of hierarchical levels, and the number of separate organization divisions reflected by the spatial distribution. We can list such indicators used in organizations as follows (Hall, Johnson, and Haas, 1967: 906);

A. General Employee Department;

- Multiple goals representing a necessary division of labor beyond what a single goal requires the number of different organizational goals.

B. Private Employee Department;

- The number of large divisions or departments (horizontal differentiation).

C. Hierarchical Differentiation;

- The deepest is the number of levels in a single segment.

D. Spatial Distribution;

- The degree to which physical facilities are spatially dispersed.

2.4. Administrative Component

The administrative component is considered part of the organization tasked with coordinating, facilitating, and supporting the rest of the organizational participants' activities at the conceptual level. The administrative component's total size generally refers to the number of technical employees at management, sales, office, and professional level in corporate organizations such as industrial firms. Therefore, we can observe the administrative component's relative size as the administration ratio to other employees (Campbell and Akers, 1970: 437). However, the administrative component analysis reveals that the personnel's activities, which are generally classified as managerial, should be directed towards the organizational goals engaged in supportive activities. However, many organizations also have non-administrative staff who contribute to supporting activities. Since such supportive activities involve more than administrative activity for many organizations, it is suitable to use supportive activity. Accordingly, the supportive component is the people involved in activities that indirectly contribute to achieving organizational goals. In this context, an organization's personnel act per the structure of the activity conducted in any organization and its relationship with the organizational goals (Haas, Hall and Johnson, 1963: 12). Besides, interaction effects at the organizational level vary between different administrative components. While such interaction effects seem to be more vital for administrative staff, they are also noticeably strong for office staff. What is more, we observe no interaction effects for professional staff. Therefore, professional authority may be a less variable coordination mechanism than the administrative authority and official communication (Rushing, 1967: 291).

Terrien and Mills (1955) argued that as organizational size increases, the administrative component increases disproportionately in size. Anderson and Warkov (1961) and Bendix (1956) contended that the administrative personnel constitutes a smaller proportion in larger organizations. Hawley et al. (1965) and Haas et al. (1963) noted that the relationship between organizational size and administrative components is curvilinear. In this perspective, as the administrative component first increased disproportionately in size and then decreased with more organizational growth, the administrative component was defined at different levels per research (Hall, Johnson, and Haas, 1967: 904-905). Accordingly, per the relationship between the size of the administrative component and the total size of the organization comprising it, we observe that the greater the size of the organization at the inclusive level, the greater the ratio given to the administrative component (Terrien and Mills, 1955: 11). In this context, the literature review reveals that as the organizational size increases, the organizational structure becomes a more comprehensive form; that is, as the specialization brought with the growth increases, the sub-units become more different, and the administrative components are developed more as a result (Seymen, 2014: 149).

III. DISCUSSION

The study analyzes per research associated with different variables for the relationship between organizational size and structure. Accordingly, it examined the organizational size, organizational structure, complexity, and mutual interactions per the administrative component variables and expressed various inferences. Research on the relationship between total organizational size and the administrative component, the supporting component staff's percentage, has focused on various organizations. Analysis results of various organizations have revealed that the increasing size is associated with the decrease in the supporting component's size, and we can say that this may be a curvilinear relationship (Haas, Hall and Johnson, 1963: 16).

The differences and similarities at the organizational level present why organizational size influences the structure, and our research should continue. Accordingly, size should be considered a factor that enables structural differentiation, relying on increasing other exchange relations as the size increases. Besides, growth can have a certain level of impact on the resource base of the organization. In this perspective, the greater the organization's ability to acquire the skills it needs from its environment, the greater the level of its resource base. Therefore,

membership size in organizations can be considered as a fundamental resource. This size can represent a structural style in which full membership is achieved in organizations. In this context, we can observe that as membership growth brings increasing resources to the organization, an increase in the degree of functional complexity will occur (Campbell and Akers, 1970: 449). A distant or close relationship between organizational size and structure enables it to be considered an essential variable in other analysis types. Therefore, organizational size is considered a critical variable in intra-organizational relations. We can say that the reason is that there is a positively correlated interaction between organizational size and power depending on the size and structure (Hall, Johnson, and Haas, 1967: 912).

The impacts of organizational size and the dimensions of the structure and its sub-dimensions, which can be considered its sub-dimensions, and the dimensions of administrative components, on the relative number of personnel in the organization, have a complex structure. Controlling the effects of size and division of labor often occurs in the interaction between other variables and the administrative component's relative size. Therefore, the control of the division of labor increases the relationship between the organization's size and management, and we can note that the effects of two variables can be independent and mutual (Rushing, 1967: 293-294). Accordingly, per the study and the resources available, we have assessed the relative evaluation of the organizational size and structure relationship. The existence of an interaction between size and structure has been established by Haas, et al. (1963), Blau and Schoenherr (1971).The relationship between organizational size and structure is strongly related to the total and the relative size of the administrative component. It may occur as a fundamental process in growth and structural change in all organizations. Besides, the direct importance of organizational membership size on organizational resources and structural changes that occur with the expansion of the resource base may vary per the type of relevant organization (Campbell and Akers, 1970: 449). However, for various organizational sizes and organizations, the administrative component varies and illustrates that its administrative density allocated to various administrative tasks can increase as the organization grows. Therefore, such inferences suggest the strategies that can be applied to organizations per organizational planning, large group dynamics, and group theory (Terrien and Mills, 1955: 13).

IV. CONCLUSION

Organizations' ability to survive in an intensely competitive environment within the industry in which they operate makes the relationship between structure and size important. The effect of size characteristics of organizations on the structure is curious, in particular. In this context, research in which organizational size is considered as the primary variable has two assumptions, in general. The first is the research that considers the organizational size and organizational structure and components as an ineffective factor. The second is the research, in which the size variable is addressed as the primary factor in organizational analysis, and the structure and other sub-components are built on the size. Blau and Schoenherr (1971), Chapin (1951), Grusky (1961), Haas, Hall, and Johnson (1963), Hawley, Boland, W. and Boland, M. (1965), Meyer (1968), Pugh, Hickson, Hinings, Macdonald, Turner and Lupton (1963) researched on the second assumption (Keçecioğlu, 2008:182). In this respect, we can say that a common consensus exists that size influences the general structure. However, we can say that no consensus on the relative importance of size concerning other aspects of the organizational structure exists (Hall, Johnson, and Haas, 1967: 904).

The central level of involvement in organizational growth and structural change research suggests that more research is needed. The interactions between organizational size and structure reveal that such research should be conducted accordingly. Therefore, significant differences and interactions can be revealed by comparing size and structure between organizations. We can clearly understand growth and structural change in all formal organizations following comparative analyzes (Campbell and Akers, 1970: 450). In this respect, we analyze the complexity and administrative component dimensions in terms of relationship interactions between the organizational size and structure. Accordingly, the interrelationships between organizational size and structure reveal that organizational structure dimensions can be explained gradually depending on organizational size criteria. We created a formulation consisting of three organizational growth stages and propositions, explaining the transitions between these stages in this perspective. Besides, as Kimberly (1976) stated, we can observe that size is utilized to distinguish three growth stages and should be considered both the determinant of the structure and its result. Thus, organizational growth can have an accompanying effect without directly causing structural changes (Astley, 1985: 202). At the same time, Chandler (1962), Stopford (1968), and Scott (1971) proposed the stage model approach in organizational growth (Keçecioğlu, 2008: 195). They proposed a gradual organizational growth model and observed that the argument requires a structural change in evolutionary development (Astley, 1985: 202).

Per the relationships between organizational structure and size, organizations that operate more than one main activity can serve all such activities by a central administrative component, relying on their characteristics such as the number of employees, the number of departments, and the type of service. We can say that every activity does not need a support staff other than the administration level, especially in complexity and

administrative component dimensions for the relations between size and structure. We can note that the variables of the size and structure discussed in the study's scope and the variables of complexity and administrative component interact. Therefore, considering organizational size as a primary variable and analyzing the dimensions of complexity and administrative component for its interactions with the structure, we can say that a more predictable level can be reached in the degrees and importance of relations open to interaction at the organizational level.

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