

Organizational Structure of Architectural Firms and Their Performances

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Abstract The focus of this study is the organizational structure of architectural firms where the mode of coordination had been unclear. The types of organizational structure in architectural firms were identified using data obtained from 92 architectural firms in Nigeria. The findings show that sizes of the firms was an important factor, which influenced the organizational structures adopted by the architectural firms. Although, sizes of the firms also had direct influence on the performance, no interaction of this variable or any internal firm characteristic with organizational structure led to any significant change in performance. Although the environment did not directly influence organizational structure, it appeared that particular organizational structures worked best when some external influences are high and resulted in higher profit. The results show that while adhoc structure leads to better performance in firms where the influence of other professionals is considered high, the administered structure is more effective highly influenced by government privatization programmes. Only the adhoc structure was however not suitable for firms strongly influenced by increasing concerns for sustainable environment. The results of the study suggest that while larger architectural firms may record higher profit, architectural firms that adapt their organizational structures to environmental conditions to reap improved profit.

Keywords Architectural Firm, Organizational Structure, External Environment, Performance

1. Introduction

Architectural firms are often set up by principal who have little managerial training. These principals often rely on the skills they acquired both in higher institutions and under seasoned architects to coordinate their firms. This is because most professionals operate autonomously. Very few studies exist, which focused on the way architects structure their firms. The debate on organizational structure dates back to 1963 in the study by Cyert and March [1]. Varying definitions have been given for organizational structure. This study however adopts the one proposed by Zhou and Wit, [2] which states that organizational structure is the ways in which an organization organizes and coordinates its works. It incorporates the way work is coordinated, how information flow and how flexible work-flow is. Scholars have agreed that organizational structure is one of the most important factors in the achievement of organizational goals [3]. One important goal for all organizations is making profit. Organizational structure facilitates the coordination of all elements within the organization [4]. This ensures that the organization is steered toward achieving its goals, in this case, making profit. It will therefore appear that

organizational structure is important in determining the performances of firms, especially in profit. In fact, scholars like Zhou and Wit [2] found correlation between organizational structure and performances of firms. It has also been agreed that organizations' structure is influenced by the organization's age, size and environment [5], which are referred to as contingencies. In fact, the structural contingency theory hypothesize the organizational structure of organizations will vary based on these contingencies [6]. It will also be expected that the firms with organizational structures that fit their contingencies will record best performances. This suggests that no particular organizational structure is best, and the structure that is best for any firm will depend on the particular situation of the firm. The context of architectural firms presents an interesting case. This is because the organization of the firms is often not in the hands of those who are trained in the management of organizations. Principals who are architects, just as in most professional service organizations, often run architectural firms. This implies that the survival and success of these firms may depend on how well these principals organize the firms. Little is however known on the ways architectural firms organize or coordinate the works within the firms. Even less is known about how the organizational structure that fit particular contingencies and lead to better profit.

This study seeks to answer three questions. First, which organizational structure types exist in architectural firms? Second, how do contingencies within and outside the firms

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influence the organizational structures of firms? Third, which relationships exist between the structural types, structural contingency variables and the performances of the firms? A study of this nature is important for three reasons. First, it contributes to literature by providing evidence for the structural contingency theory. Second, it provides insight into the design of architectural firms, where principals are often not trained in the management of organizations. Third, provides empirical evidence of how architectural firms design their firms to fit other firm characteristics and the environment.

2. Literature Review

With the emergence of the architect- entrepreneur after the Second World War [7], the profession of architecture moved beyond just being a design team to being a business organization, providing services in a market place. Architectural firms are therefore organizations which have to organize themselves to carry out their tasks, taking into consideration the trends and developments around them. The owner of the architectural firms thus gather resources to provide architectural services which has often involves designing spaces for serving the multifarious activities of human beings and for meeting their specific needs in a meaningful built environment. The works are organized in ways that the principal deems appropriate. This is the organizational structure of the firms.

The most popular work on the types of organizational structure stems from the work of Henry Mintzberg [8]. The basic dimensions of organizational structure from literature are formalization, centralization and specialization (referred to as complexity by Pertusa- Ortega, Zaragoza- Saez and Claver-Cortes, [4] and departmentalization by Zhou and Wit [2]. Centralization refers to the extent to which decision-making power is concentrated in top management level of the organization [9]. Specialization refers to the extent to which organizational tasks are divided into subtasks and people are allocated to execute only one of these subtasks. High-level specialization exists when each person performs only a limited number of tasks, while low-level specialization imply that people perform a range of different and frequently changing tasks.

Formalization on the other hand, indicates the extent to which the rights and duties of the members of the organization are determined and the extent to which these are written down in rules, procedures, and instructions. Formalization is not limited to fixing what one's tasks are and how they should be done, but can be broader, prescribing all kinds of behaviour in the organization such as dress code, working hours, smoking regulations, use of office equipment, or internet use. Pertusa- Ortega, Zaragoza- Saez and Claver-Cortes, [4] suggested that formalization can drive an organization to patterns of actions that are not flexible. On the other hand, formalization was also argued to improve cooperation among organizational staff as it shapes the mode

of interactions.

These dimensions of organizational structure have been grouped into common types in literature. The Mintzberg structural configurations are more commonly referred to. These configurations have been applied to many industries and professions. Mintzberg identified the types of organizations where identified structures may be found. What this suggests is that different industries may have the dominance of different organizational structures. The entrepreneurial organization is the first organizational structure type identified by Mintzberg [8]. This structure has very few top managers who tightly control the activities of the firm. This is similar to the description of Bafandehzende [10] of a firm in its early years which is more centralized. This type of organizational structure is very flexible, and informal. Although it may be assumed that this type of structure is more suitable for small organizations, Mintzberg [8] suggested that large firms in hostile environments may also revert to the entrepreneurial structure to take advantage of the strong power at the centre, less formal procedures and flexibility to wade through the period. The centralized control is still maintained with the machine bureaucracy structure although office procedures are very formal and there is a high degree of specialization. This type of structure is however suggested to be used by large organizations to take advantage of economies of scale. It is also said to be suitable for stable environments.

New organizations are said to function on ad-hoc basis to survive. Work in organizations with this type of organizational structure is very flexible. The levels of centralization, specialization and formalization are very low. The pool of talents in organizations with this organizational structure is allowed to work in a flexible way. Adhoc structure stresses horizontal links and work teams. Workers however move from team to team to execute new projects. This type of organizational structure easily responds to change, suggesting that it can also be used in unstable environments.

With professional service firms Mills, Hall, Leidecker and Margulies [11] argued that individual responsibility for task performance is high because of the levels of uncertainty of workflow and task interdependence. This may result in the separation of the administrative core from the operating units as noted by Mills et al. There is also high contact of employees with clients with professional organizations. For these reasons, Mills et al [11] suggested that professional organizations adopt the professional structure, where the professionals have autonomy on aspects of the work under their control. With professional organizations like architectural firms, Mintzberg [8] suggested that the highly-trained professionals involved may require autonomy. Thus, decision- making in such organizations are decentralized. However, there is a high degree of specialization of duties and formalization of office procedures. The reduced control of the executive in this type of organizational structure may lead to difficulty in steering the organization for change.

Very few studies have however been carried out to investigate if the organizational structure hypothesized really exist in professional service firms like the architectural firm.

Scholars have also noted that organizational structure may be influenced by contingency factors and certain structures suit certain contingency factors resulting in better performances [10]. Such contingencies, according to Donaldson [6] include technology, size, and environment. In summary, the structural contingency theory posits that organizational structure will vary with contingency factors. In addition, a fit between organizational structure and contingency factors can lead to better performance and vice-versa. This performance could be in form of efficiency, staff satisfaction, or profitability. In this study, profitability of architectural firms is being considered. This is because profitability often determines the sustenance of firms. Although the structural contingency theory suggests that both internal and external contingencies may influence the organizational structure and performances of the firms, Donaldson [12] argued that organizations may not change their structure to adapt to internal contingencies, although this may be necessary to adapt to external contingencies. This is because internal contingencies are often within the control of managers of organizations. It may therefore be worthwhile to investigate if there are fits of internal as well as external contingencies with organizational structure, which result in better performances, or if the fits are limited to external contingencies, as one will infer from the argument of Donaldson [12].

A few of the contingencies have been discussed in literature. The study by Pertusa- Ortega, Zaragoza- Saez and Claver-Cortes [4] showed that smaller firms tend to be organic and flexible in structure, with more centralized control. The age of the firm is another factor, which has been suggested to influence the organizational structure of firms. In fact, Mintzberg [13] noted that firm organizational structure evolves as the firm grows, suggesting that the structure of firms may change with age or size. With an increase in organizational size, mostly in terms of number of employees, Robbins, [14] suggested that there will be corresponding increase in specialization, formalization and vertical span of control (decentralization). Lawrence and Lorsch, [15] also noted that organizations with less influence of the environment will have a centralized hierarchy with more formal rules and procedures. On the other hand, with high influence of the environment, organizations are more flexible. The area focused on in this study, is rife with economic fluctuations and other environmental influences [16, 17]. This is said to have resulted in the cyclical nature of the architectural industry in the country. Little is however known on the extent of influence of these contingencies on the organizational structure and performances of architectural firms in Nigeria.

Based on the above literature, this study was conceptualized in three ways. First, contingency factors influence organizational structure of architectural firms

(Figure 1). Second, contingency factors and organizational structure each exert independent influence on the performances of architectural firms. Third, the effect of organizational structure on performance is moderated by the contingency factors. These expected relationships are as shown in Figure 1.

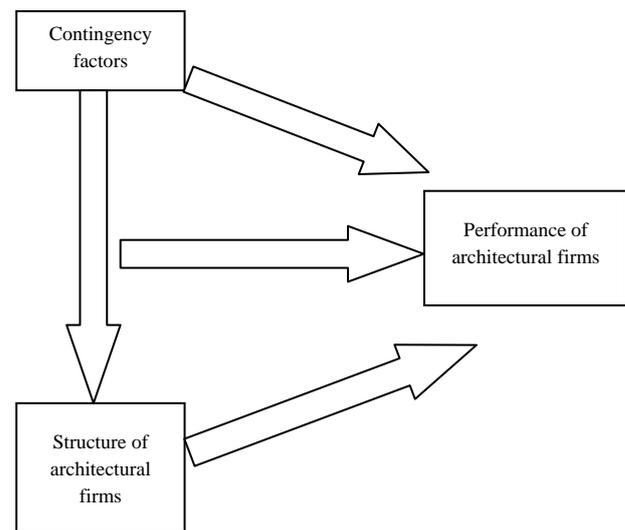


Figure 1. Conceptual Analysis

3. Research Methods

A sample of 157 firms was selected from 342 firms registered by the Architects Registration Council of Nigeria [18]. The architectural firms sampled were those that carried out core architectural services and were headed by registered architects. Architectural firms were randomly selected from Abuja, Lagos, Kaduna, Enugu, Port Harcourt and Ibadan where 77.7% of architectural firms in Nigeria were located. The principals of the architectural firms were asked to fill the questionnaire. The questionnaires were administered between February and May, 2008 with the aid of 15 research assistants. There were two reasons for the recorded response rate. First, there was a challenge locating many of the firms at the listed locations because they had relocated without updating their addresses with the council. Second, quite a number of architects did not fill the questionnaire, insisting that they were busy. Only 92 properly filled questionnaires were retrieved, giving a response rate of 58.6 percent.

The types of structure adopted by the firms were the dependent variables in the study. The principals were asked to indicate their levels of formalization, specialization and centralization as contained in a total of 31 questions. To assess the level of specialization of duties within the firms, firms were asked to indicate the tasks that were carried out exclusively by at least one staff. The existence of departments within the firms was also investigated as this could suggest the level of specialization within the firms. For the level of formalization of office procedures, firms were asked to rate how formal seven office procedures were on a Likert scale of 1 to 3. Informal office procedures were rated

as 1, fairly formal office procedures as 2 and very formal office procedures as 3. The level of centralization of decision- making within the firms was obtained by asking the firms to indicate who took decisions on certain issues. The options were arranged in order of seniority in the firms. This ranged from principal partner, senior architect, administrative manager any architect, any administrative staff to any staff. The dimensions gave 31 variables which were entered in two- step cluster analysis to arrive at the types of organizational structure used by the firms.

The principals of the firms were not willing to divulge the actual profits of the firms. They were however willing to indicate their level of profit on a scale. In line with the findings of Wall, Michie, Patterson, Wood, Sheehan, Clegg, and West [19] that subjective measures, obtained from top management are as valid as objectives measures of performance; the principals were asked to indicate how they perceived their profits in the last two years on a scale of 1 to 5. On the scale, 1 represented not so good, 2 - fair, 3 was good, while 4 was very good. These scores were recoded into 1 and 2 for not so good and 3 and 4 for good. The ages of the

firms were also computed from their dates of establishment until date. The size of the firm was computed based on the number of staff within the firms as with previous studies. A range of 1 to 10 staff was coded as 2, 11 to 30 staff as 3 and 31 staff and above as 4.

To determine the levels of external influences on the architectural firms, the firms were asked to indicate how strong their perceptions of the influence of ten external factors were on their firms. The external factors investigated are indicated in Table 1. The principals were asked to indicate on a scale of 1 to 5, how strong they perceive the influences of the external factors are on their firms. The perceptions of the principals was adopted because it afforded the opportunity to subjectively measure how aware the principals are about the factors, as this may determine if they consciously adopt organizational structures suitable for the perceived influences. The scale of 1 represented very weak influence; 2 was weak influence; 3 neither weak nor strong influence; 4 was strong influence; while 5 represented very strong influence.

Table 1. Variables in the Study

Construct		Variables
Performance of the firms		Perception of the profit of the firm in the last two years
Organizational structure	Specialization	Number of tasks exclusively carried out by at least one staff Existence of departments
	Formalization (1- informal, 3- very formal)	Communication with staff within the office Communication with other professionals Communication with clients Financial matters and budgeting Management decisions Staff working conditions and job descriptions Meetings in the office
	Centralization of decision- making (1- principal of firm, 8- any staff)	How to get new jobs and clients Collaborations with other firms Managing the non-design staff Fees to be charged for projects Hiring /promotion of architects Design ideas to use in projects Managing projects Salaries of staff
Contingency factors	Size of firm	Number of staff
	Age of firm	Age from the date of establishment of firm
	Influence of the external environment (1-very weak influence, 5- very strong influence)	Clients The architectural professional body (NIA/ ARCON) Advances in information technology The national economy The political climate of the country Current privatization programmes Government policies Infrastructure (e.g. electricity, water etc.) Increasing concern about sustainable environment Other professionals

As stated earlier, the types of organizational structure adopted by the firm was derived using two- step cluster analysis using the data on centralization, formalization, and specialization. Regression analyses were conducted to investigate the influence of contingency factors on organizational structure and performance. Same analysis was conducted to investigate the direct influence of contingency factors on performance. Since interaction effect of organizational structure and contingency factor was part of the aim of the study, hierarchical regression analysis carried out. This analysis first isolated the direct individual influence of contingency factors before investigating the interaction effect.

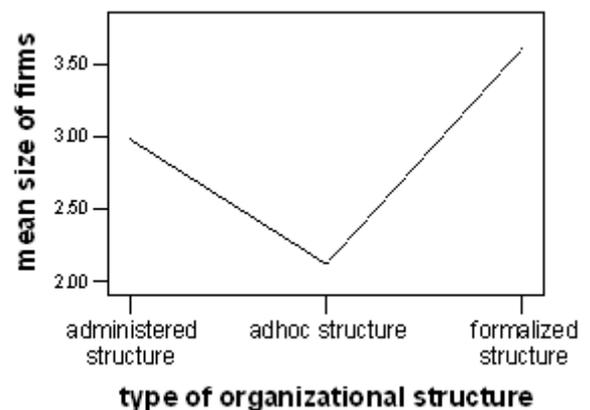
4. Results

From the cluster analysis, 3-cluster solution was obtained. The first cluster consisted of 13% of the firms. These were characterized by low level of specialization, fairly formal office procedures and high level of centralization of decisions. These firms exhibited organizational structures that were similar to the Mintzberg's entrepreneurial structure. It appears that activities within the firm are highly coordinated from the top. They are described in this study as administered firms. This is because these firms appear to have principals who have tight control over the activities of the firms, even to the extent of not allowing an individual staff to have charge of a particular task. The second cluster consisting of 42.4% of the firms in the study exhibited no specialization of duties and low level of formalization of office procedures. These firms can be described as adhoc firms as they did not appear to have particular ways of carrying out firm operations. They exhibit organizational structure similar to Mintzberg's adhoc structure. Also characterized by low level of specialization of duties but very formal office procedures and low centralization of decision- making, the third cluster was made up of 44.6% of the firms. The decision- making in the firms in this cluster appear to be decentralized but activities are coordinated by the very formal office procedures. The organizational structure of these firms may have been similar to the professional structure derived by Mintzberg [8], but the firms in this third cluster had low level of specialization of duties. It will appear that firms in this cluster only operated as written, although members of the firm do not have particular tasks and do not need to wait for the management to make certain decisions. This suggests that these firms only have written procedures, with varied responsibilities either for task or for decision- making. No single person is made responsible for duties or decisions within the firms. The firms in the third organizational structure cluster were therefore labeled as formalized.

The results in Table 2 show that most of the firms that were sampled (74.2%) had existed for more than ten years and most had 20 or less numbers of staff. More than half of the responding firms recorded strong influences of clients,

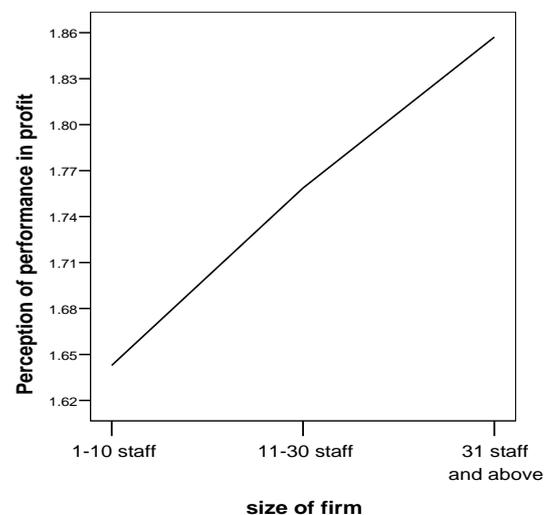
information technology, national economy and infrastructure. The influence of current privatization programmes in the country was however weak for most firms. The percentage of firms that recorded weak influences of the architectural professional body was almost equal to the percentage that recorded strong influences. The same was the case with influences of political climate, government policies, increasing concern about sustainable development and influence of other professionals. Almost half (44.6%) of the firms sampled had the formalized structure. A close proportion (42.4%) had the adhoc structure, while just 13% of the firms had the administered structure.

The regression analysis of the direct relationship between contingency factors and organizational structure gave a significant result ($R^2 = 0.066$, $p < 0.05$). Only one of the contingency factors however gave this result. Specifically, the size of the firms influenced the organizational structure of the firms. Figure 2 show that firms with the largest number of staff had official structure, while firms with medium sized had administered structure. Firms with adhoc structure recorded the least number of staff.



Source: Authors' Fieldwork, (2008)

Figure 2. Type of organizational structure by the size of firm



Source: Authors' Fieldwork, (2008)

Figure 3. Size of firm and the perception of performance in profit

Table 2. Firm Profiles

Variables		Percentage of occurrence
perception of the firm's profit	not so good	28.1
	good	71.9
age of firm	0-5 years	9.9
	6-10 years	16.0
	11-15 years	27.2
	16-20 years	19.8
	21-25 years	13.6
	26 years and above	13.6
size of firm (total number of staff)	1-10	48.3
	11-30	35.6
	31 and above	16.1
influence of clients	weak influence	12.3
	strong influence	87.7
influence of the architectural professional body (NIA/ ARCON)	weak influence	58.3
	strong influence	41.7
influence of advances in information technology	weak influence	19.5
	strong influence	80.5
influence of the national economy	weak influence	27.2
	strong influence	72.8
influence of the political climate of the country	weak influence	50.0
	strong influence	50.0
influence of current privatization programmes	weak influence	79.5
	strong influence	20.5
influence of government policies	weak influence	46.3
	strong influence	53.8
Influence of infrastructure (e.g. electricity, water etc.)	weak influence	32.9
	strong influence	67.1
influence of increasing concern about sustainable environment	weak influence	46.7
	strong influence	53.3
influence of other professionals	weak influence	49.3
	strong influence	50.7
type of organizational structure	administered structure	13.0
	ad hoc structure	42.4
	formalized structure	44.6

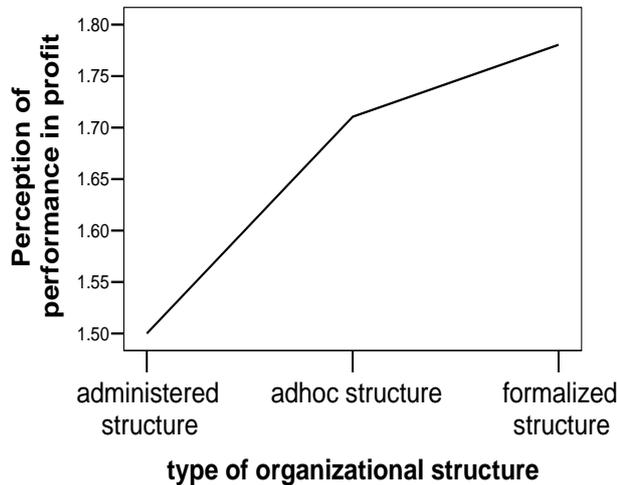
Source: Authors' Fieldwork, (2008)

The age, size and influences of the external environment, (referred to as contingency factors in this study), were entered first in hierarchical regression analysis to contingency the effects these variables may have on the performances of the firms. Next, the organizational structure of the firms was entered to investigate the direct effect that structure may have on the performance of the firms. The main effects of the contingency variables and the organizational structure of the firms were thus eliminated before the interaction effects of the contingency variables and the organizational structure of the firms on the performance of the firms was investigated. The interaction between ownership characteristics and organizational structure were entered in the third step. While a significant result at the first and second step may indicate direct effect of the contingency variables and organizational structure of performance respectively, a significant result at the third step

will indicate the moderating effect of the contingency variables on organizational structure to influence performance. Table 3 show that the contingency variables have direct effect on the performance of the firms, resulting in performance change of 18.5% (R^2 change, = 0.185, $p < 0.05$). The size of the firm (Wald = 5.945, $p = 0.015$) was however the only variables that accounted for this variance in the performances of the firms. When organizational structure was added, a 4.3% increase in variance in performance was recorded (R^2 change, = 0.043, $p < 0.05$). Figure 3 show that larger firms recorded higher performance in profit than small firms did. Firms in the study with formalized structure also performed best, followed by firms with ad hoc structure (Figure 4).

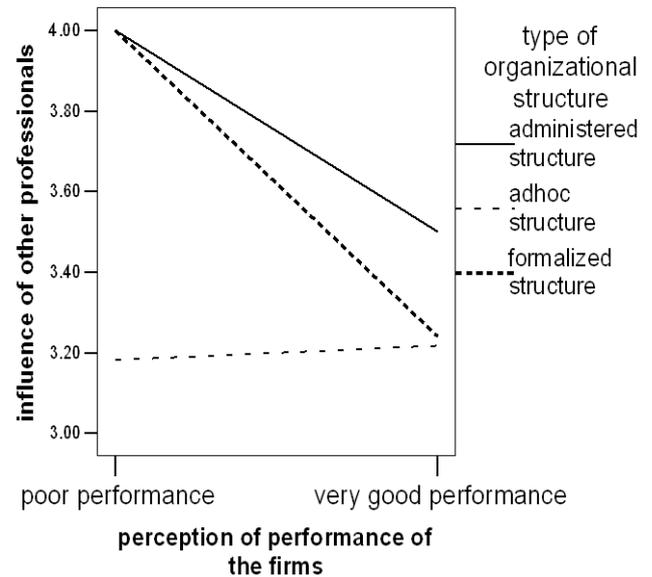
The interaction of the organizational structure with the contingency variables in the study accounted for a significant 17% further variance in the performances of the firms. The

results show that the interactions between organizational structure and influences of concern about sustainable environment (Wald = 4.222, p = 0.040), other professionals (Wald = 4.378, p = 0.036), and current privatization programmes (Wald = 5.264, p = 0.022) resulted in this difference in performance.



Source: Authors' Fieldwork, (2008)

Figure 4. Type of organizational structure and the perception of performances of the firms



Source: Authors' Fieldwork, (2008)

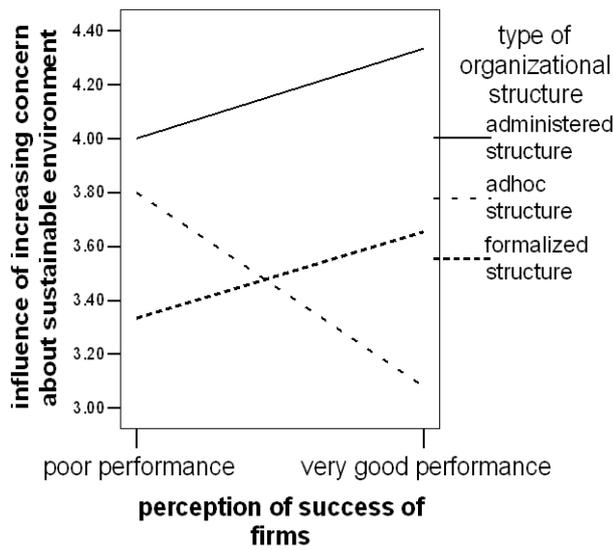
Figure 5. Type of organizational structure, influence of other professionals and the perception of profit

Table 3. Results of Simultaneous Hierarchical Regression Analysis for Performance

Variables		Performance		
		step 1	step 2	step 3
contingency factors	age of the firm	.115	.123	.184
	size of firm	5.945*	4.037*	.265
	influence of clients	3.509	4.403	2.431
	influence of the architectural professional body (NIA/ ARCON)	.275	.734	1.693
	influence of advances in information technology	.156	.214	.084
	influence of the national economy	.858	1.965	1.368
	influence of the political climate of the country	.650	1.088	4.133*
	influence of current privatization programmes	1.931	2.026	5.010*
	influence of government policies	.013	.034	1.807
	influence of infrastructure (e.g. electricity, water etc.)	2.034	2.987	1.394
organizational structure	influence of increasing concern about sustainable environment	.014	.043	4.252*
	influence of other professionals	.555	.790	4.403*
	type of organizational structure		4.526*	2.543
	structure x age of the firm			.052
	structure x size of firm			.035
	structure x influence of clients			2.872
	structure x influence of the architectural professional body (NIA/ ARCON)			1.472
	structure x influence of advances in information technology			.608
	structure x influence of the national economy			3.088
	structure x influence of the political climate of the country			3.572
organizational structure/ contingency factors interaction	structure x influence of current privatization programmes			5.264*
	structure x influence of government policies			1.458
	structure x influence of infrastructure (e.g. electricity, water etc.)			.689
	structure x influence of increasing concern about sustainable environment			4.222*
	structure x influence of other professionals			4.378*
	R2 change		0.043*	0.170*
	R2	0.185*	0.228*	0.398*

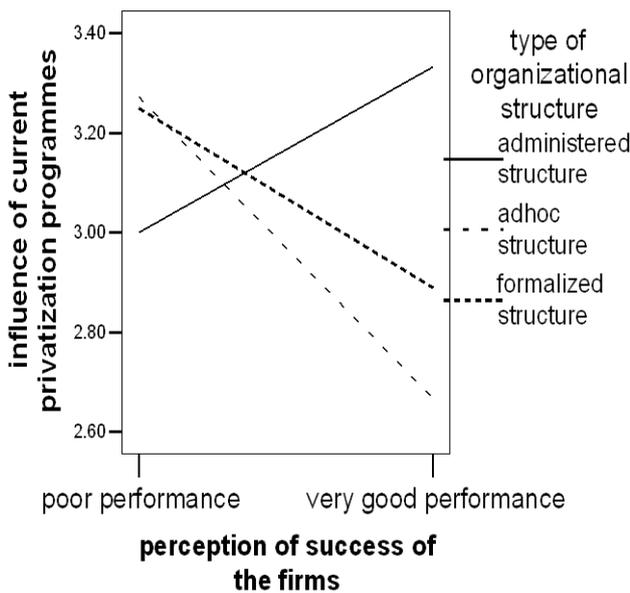
* p < .05, two-tailed test

Source: Authors' Fieldwork, (2008)



Source: Authors' Fieldwork, (2008)

Figure 6. Type of organizational structure, influence of other professionals and the perception of profit



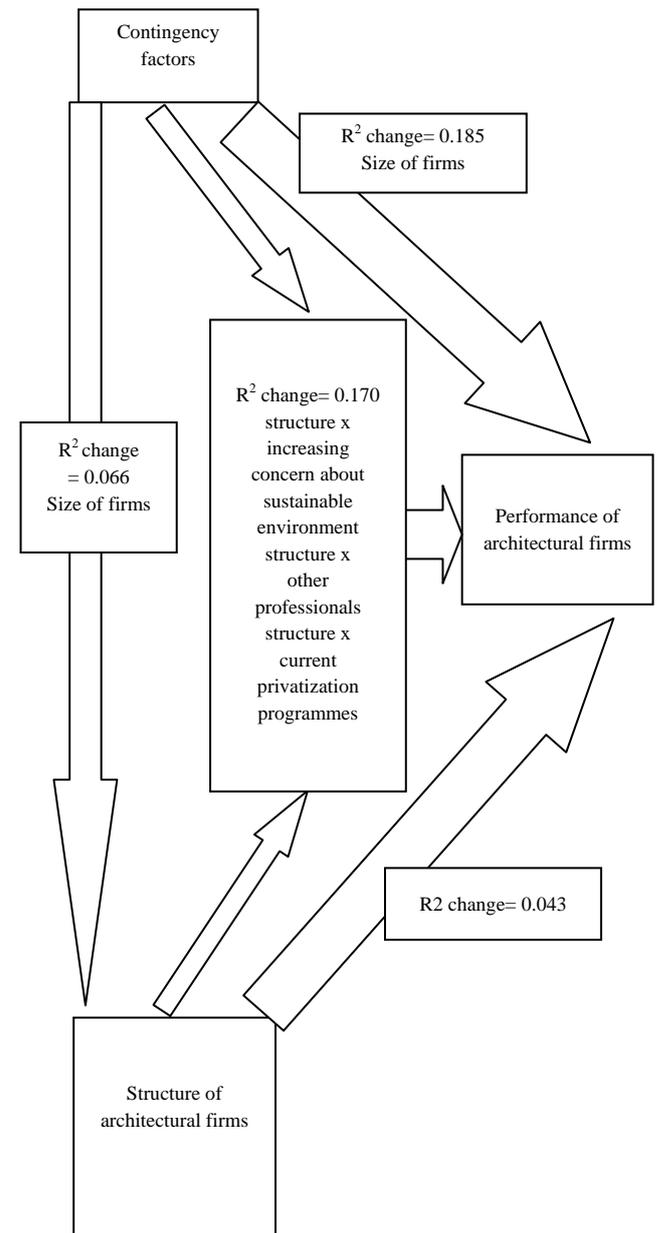
Source: Authors' Fieldwork, (2008)

Figure 7. Type of organizational structure, influence of privatization programmes and the perception of profit

When these contingency variables were plotted against the organizational structure and the performances, fits of organizational structure and contingency variables that led to better performances were identified (Figures 5 to 7). The results show that firms with administered or formalized structure did not perform well when the influence of other professionals is strong. The performance of firms with adhoc structure is however little affected by this external influence, although it appears that a slight increase in the influence of other professionals led to better performance. On the contrary, firms with administered or formalized structure performed well when the influence of increasing concern for sustainable environment is strong, while firms with adhoc

structure did not perform well under such influence. In the face of strong influence of the current privatization, firms with administered structure recorded very good performances while firms with adhoc or formalized structures recorded poor performances. Figure 8 give a summary of the relationships found in the study.

5. Discussion



Source: Authors' Fieldwork, (2008)

Figure 8. Results of the study

The most common organizational structure types in the architectural firms in the study were the formalized and adhoc structures. This suggests that architectural firms in Nigeria may be mostly characterized by low specialization of duties and low centralization of decision- making. It further suggests that although professional service firms may be

highly specialized, closer studies may be required to ascertain the level of specialization of the operations within the firms. The types of organizational structure derived in the study seem to be a little peculiar to the architectural firms. The administered structure in the study is similar to entrepreneurial structure derived by Mintzberg [8]. However, it appears that bureaucratic structure is not present in the firms at all. One may argue that the professional demand of autonomy may not make for such bureaucracy. It will however be noted that this study focused on only one category of professional service firms in a location and this finding may not be generalized. In addition, one would have expected that the professional structure derived by Mintzberg, which is characterized by decentralization, and high levels of specialization and formalization will be more dominant among architectural firms, since they are professional service firms. The study however shows that none of the organizational structures derived in this study was characterized by high level of specialization. The closest to the professional structure was the formalized structure, which although was characterized by decentralization and high level of formalization, did not exhibit the high level of specialization of the professional structure.

The findings of this study give some empirical backing to the assertions of some previous authors on organizational structure and contingency factors, while refuting others. For example, previous authors suggested that the size of firms influenced the organizational structure they adopt. The findings of this study appear to support this claim. The results show that small-sized architectural firms adopted ad-hoc approaches to organizing and coordinating their works. As the firms grew, it appeared that the control by the principal became tighter. With the large firms however, the result suggest that the principals relinquished control, and put in place procedures, which guided the firms' operations. One reason for these results could be that small firms are probably just starting and thus are trying to discover what works and what does not, leading to the adhoc arrangement. It appears that medium sized firms may have principals who believe they have leant and are therefore able to have tight control of the firms. Managing a large firm however may have been more demanding, which justifies why there seemed to have been more contributions by staff of the large firms in management decisions. These firms however set up formal procedures to coordinate the activities and probably ensure adequate reporting by the persons authority is delegated to. In addition, large architectural firms in the study exhibited high level decentralization and increased formalization afforded by the formalized structure as suggested by Robbins [14]. However, contrary to the suggestion of Pertusa-Ortega, Zaragoza-Saez and Claver-Cortes, [4], the small firms did not appear to maintain centralized control, although they exhibited low level of formalization and specialization. Only the medium- sized firms in the study exhibited such high level of centralization of decisions. The results also show that the administered

structure, which is similar to the entrepreneurial structure derived by Mintzberg was used by firms with medium sizes and not large firms as suggested by Mintzberg. It will however be noted that what Mintzberg referred to as small organization was not clearly stated and comparison of the statement may be inappropriate.

Size of the firms was also the only contingent factor in the study that had direct significant influence on the performances of the firms. It is interesting to note that the large firms were the most successful in terms of profit while the very small firms were the least profitable. An explanation for this could be that the sizes of the large firms put them in a position to attract larger jobs and probably take advantage of economies of scale, making them most profitable.

There however seem to be a conflict when the influence of organizational structure on performance was examined. This is because although firms with adhoc structures were found to have the smallest sizes, the independent examination of the influence of organizational structure on performance show that these firms performed better than firms with the administered structure, which had medium sizes. It will thus appear that with the firms with adhoc and administered structures, the relationship between size, organizational structure, and performance may not be directly proportional. This probably suggests that large size with one may make for highest profit, while with the other; large sizes may not lead to the highest attainable profit. The regression analysis however showed that the interaction effect of size and organizational structure on performance was however not significant suggesting that some other factor may have come into play which is not investigated in this study.

It appeared that decentralization did indeed result in higher profit for the firms. This can be deduced from the fact that firms with formalized structure characterized by decentralization and high formalization recorded the highest profit, while firm with the adhoc structure also characterized by decentralization; with low formalization was next in performance. These firms may have recorded good performances because as noted by Pertusa-Ortega, Zaragoza-Saez and Claver-Cortes, [4], decentralization may have fostered better business opportunities in firms by the contributions of other within the firms. Firms with formalized structure may however have had better performances than firms with the adhoc structure because the high formalization of the formalized structure may have helped to harness the contributions of other more productively, while the low formalization of the adhoc structure may mean that contributions of others within the firms are not harnessed. The firms with the administered structure however, which imply that they are highly coordinated form the top recorded the least performance. This is probably because according to Pertusa-Ortega, Zaragoza- Saez and Claver-Cortes, [4], centralization in these firms may have reduced the generation of creative ideas, which could enhance the profit of these firms.

Lawrence and Lorsch [15] suggested that firms in under

high influence of the environment would have a centralized hierarchy and more formal rules and procedures. However, the findings of this study suggest that this statement may not be generalized. The influence of the environment had no direct significant influence on the organizational structures of the firms. Similarly, the influence of the environment did not appear to exert direct significant influence on the performances of the firms. The results however suggest that the influence of the environment is more interactive. This is because it was found that there are organizational structures that work best when some external influences are high. Under high influence of competitions from other professionals, the architectural firms with administered or formalized organizational structure did not perform so well. This probably suggests that these organizational structures are not best when the influence of competitions from other professionals is high as they lead to reduced profit. Other professionals within the construction industry pose competitions to architectural firms. The results suggest that to profit despite these competitions, architectural firms may need to adopt organizational structures which are neither highly controlled from the top or highly formal. It will thus appear that with high influence of competitions from other professionals, the adhoc structure may be more suitable. It is however interesting to note that the difference in the levels of influence of other professionals on the architectural firms in the study based on their performances is only slight. It is also possible that by their disposition to impulsiveness, proper assessment of the influence of other professionals not have been made by the firms with adhoc structure.

On the contrary, firms with administered and formalized structure performed well when the influence of increasing concern about sustainable environment is high, while firms with the adhoc structure recorded poorer performance. With little coordination however, architectural firms with adhoc structure did not seem to perform well when the influence of increasing concern for sustainable environment is high. This may suggest that response to demands for sustainable require deliberate coordination within the firms. The results probably confirm the assertion of RIBA [20] that rising to the demands of sustainability by architectural firms will require commitment from leadership. This is because implementing sustainability in architectural practice may require that architects communicate and promote the importance of sustainability to clients. To carry this out, the firms may need to acquire and store appropriate reference materials and software as well as update the skill of its workforce. This is probably why firms that are coordinated either directly by leadership or by formal office procedures may profit more as they may be more disposed to meet the requirements to practice sustainability.

The privatization programmes of the government of Nigeria have also moderated the influence of structure on the performances of the architectural firms in the study. This is despite the fact that less than a quarter of the firms recorded high influence of privatization programmes. The results

however indicate that when this influence of privatization programmes on architectural firms is high, only the firms with the administered structure are better able to make profit. An explanation may be proffered for this observation. When governments privatize certain aspects of the economy, change of ownership is implied, from the public sector to the private sector. With such changes comes the need to revitalize the companies the private sector took over. This many times may involve restructuring and thus the reconstruction, or modification of existing physical structure, change in clientele or even service providers. Architectural firms provide services to both the public and private sectors of the economy. When clients of architects change from the public sector to the private sector, strategic changes within the firms may be necessary to meet up with the requirement of the new clients. These changes may need to be taken on time, to harvest immediate returns. It thus appears that when the architectural firms in the study exhibited central control, coupled with informal procedures and flexibility, they may be better able to reap the benefits of privatization as the principal can quickly take strategic decisions, which may alter the operations of the firms without the limitations of formality.

Contrary to previous agreements by scholars [5] that age of firms influenced their organizational structure, this study found that age of architectural firms did not exert significant influence on their organizational structures. This suggests that the organizational structure of the firms may therefore not change over the lifespan of the firms, except there are changes on other factors such as size of the firms as found in this study. It is interesting to note that none of the external factors investigated in the study had significant direct influence on the organizational structures of the firms. It therefore appears that the ways the firms organized their firms were not influenced by other factors outside the firms.

One would have expected that the economy of the country would have influenced the way the firms structured themselves as well as the performances of the firms. The results of the study however indicate that this external influence did not significantly affect the way the firms structured themselves, neither did it influence the performances of the firms. This result may be because of the cross-sectional nature of the study that may not have afforded sufficient opportunity to study varying effects of the economy. This is probably because the economies of countries change over periods. It is possible that the firms already adopted organizational structures that suit other variables within the firms for the pervading economy of the time of study. The same explanation may also be offered for the non-significant effect of advances in information technology on organizational structure and performance of the architectural firms in the study. In addition, government policies also require time to take effect.

Although most of the firms in the study recorded high influence of clients on their firms, this did not significantly affect their organizational structure or their performances.

This probably suggests that although clients exert influence on the architectural firms, the dimensions of the influence may neither be related to the internal organization of the firms nor the performances. It is also possible that management of clients is little related to the organization or coordination of works within the firms. This is surprising especially in the context of a professional service firm, where the client is often a part of the production process.

The results suggest that although certain organizational structures are best when some external influences are high as they lead to better profits, there are no significant fits between the internal factors and the organizational structures of the firms. In fact, a closer examination of the data shows that regardless of the organizational structure, the firms generally performed better with larger sizes. The age of the firm was however not significant in this study. It therefore appears that as suggested by Donaldson [12] since the internal contingencies are within the control of the principals, there may not be need for the firms to change organizational structure to achieve better performances. Rather the internal contingencies are adjusted to attain higher performances. However, with external contingencies, which are often outside the control of principals or architectural firms, there may be need to change the organizational structure when the environment changes in order to avoid performance reduction.

6. Conclusions

This study answered three questions. It provided insight into the organizational structure types that exist in architectural firms, where the principals who run the firms are often not trained in management. The study has shown that only one of the internal factors in the study (the sizes of the firms) influenced the organizational structures of the firms. External factors did not. Four relationships in the conceptual framework have been established. The results has also provided empirical evidence for the structural contingency theory having shown that particular organizational structures result in higher profits when influences of certain external factors are high. The investigation of the organizational structures that fit the internal factors investigated in the study (sizes and ages of the firms) however returned non- significant relationships.

The results of this study have implications for principals of architectural firms. This is because although the sizes of the firms accounted for a considerable variation in the performances of firms, higher profits may accrue to firms that adapt their organizational structures to suit the environmental conditions. Principals of architectural firms may therefore need to consider external factors in choosing the organizational structure to adopt in their firms. To effect necessary changes, such principals should be able to determine objectively assess extent to which external factors influence their firms.

Despite the important findings of this study, there are

limitations to the study. One of such is the cross-sectional nature of the study, which did not afford the opportunity to study the change in organizational structure over time. Subsequent studies may adopt a longitudinal approach to investigate differences in organizational structure and contingencies over time and the attendant effects on performance. The measures of profit and external influences were also subjective because of the non- availability of objective measures. Subsequent studies may employ the use of more objective measures. This study focused on just architectural firms, and the results may not be generalized to other professional service firms. Further studies may be required which focus on other professional service firms. This will dictate the limits of generalization of the findings of this study.

There is also a need for further studies, which investigate the dimensions of the influence of clients in professional service organizations, where the clients are often a part of the production process. Generally, low specialization of activities within the firms was observed in this study. However, professional services firms have been defined as highly specialized firms. Further studies may investigate the relative levels of specialization within professional service firms to ascertain if the specialization referred to in literature was limited to the overall functions of the firms or covers the activities within some professional service firms.

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