

IMPACT OF LABOUR TURNOVER ON THE PRODUCTIVITY OF ACADEMIC STAFF IN  
AHMADU BELLO UNIVERSITY, ZARIA (2000-2009)

By

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M.Sc/ADMIN/57474/05-06

Being an M.Sc Thesis Submitted to the School of Postgraduate Studies, Ahmadu Bello  
University Zaria, in partial Fulfillment of the Requirements for the Award of Master of Science  
(M.Sc.) in Business Administration

Department of Business Administration  
Faculty of Administration  
Ahmadu Bello University, Zaria.

SEPTEMBER, 2012

## **DEDICATION**

This thesis is dedicated to my beloved parents: Late Alhaji Isma'il Sa'eed Yakasai and Late Hajiya Aisha Isma'il Yakasai.

## DECLARATION

I hereby declare that this thesis titled “*Impact Of Labour Turnover On The Performance Of Academic Staff In Ahmadu Bello University, Zaria. (2000 – 2009)*” is a product of my research work. To the best of my knowledge, it has never been submitted anywhere for the award of any degree or Diploma. All sources of materials used are duly acknowledged.

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Name of Student

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Signature

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Date

### CERTIFICATION

This thesis entitled: “*Impact Of Labour Turnover On The Performance Of Academic Staff In Ahmadu Bello University – Zaria. (2000 – 2009)*” by Abdullahi Isma’il Yakasai meets the regulations governing the award of the Degree of Master of Science (M.Sc.) in Business Administration of Ahmadu Bello University and is approved for its contribution to knowledge and literary presentation.

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## ACKNOWLEDGEMENTS

All praises be to Him who provides in abundance, Allah, (S.W.A.) the Creator, the Nourisher, the Sustainer, the Giver, the Beneficent and the Merciful. May His blessings be upon His noble and beloved Prophet Muhammad (S.A.W.) his family members and his companions (the bearers of divine values). I wish to express my profound gratitude and appreciation to the chairman of the supervisory Committee, Dr. Sabo Bello for his efficient and effective supervision as well as the consistent academic leadership that he has demonstrated. He motivated, guided and facilitated the successful completion of the work. I must confess and acknowledge the value that his wealth of his academic experience has added to this work. I honestly acknowledge the contributions of Dr. O.D.Y. Malachy as a member, of my supervisory committee. He offered useful comments, valuable suggestions and constructive criticisms. My heartfelt gratitude and appreciation go to my parents: Late Alhaji Isma'il Sa'eed Yakasai and Late Aisha Isma'il Yakasai, who influenced me and touched my life since my childhood. May their souls rest in perfect peace, Amen.

Special thanks to the M.Sc. programme pioneering set and other subsequent sets. The effort of the Acting Co-ordinator, Mal. Masoud G. Sa'eed cannot be overemphasized. He tried a lot in seeing to the successful completion of this noble task. I am equally indebted to Dr. Habeeb M. Sabari, who immensely made constructive criticisms and provided valuable suggestions. He devoted substantial part of his time to this study and effected the necessary corrections to the soft copy of this work. I owe a debt of gratitude to Dr. Suleiman A. Karwai for his moral and academic support. I must also appreciate the academic concern of Mal. Isma'il Tijjani Idris, Mal. Mustapha A. Zailani, Dr. Suleiman M. Hussaini, Dr. Isa Garba, Dr. Mukhtar Abubakar, Dr.

Mustapha Gwadabe, Mal. Muhammad Ibrahim, Mal. Aminu S. Gumi, Mal. Bashir Dalhatu Imam, Mal. Abdullahi T. Sharubutu, Mal. Ladan Sahnun, Mal. Zubairu Muhd., Mal. L.G. Saulawa, Mal. Bashir Tijjani, Haj. Safiya Adamu, Late Mal. S.M. Gegu and Late Mal. Hamisu Adamu.

My hearty appreciation goes to the following elders in the Department: Prof. Sheikh Abdullah, Dr. A.M. Abdissamad, Prof. A.B. Akpan, Dr. M.N. Maiturare, Dr. Bashir U. Kurfi, Prof. Sani Abdullahi, Dr. Auwal Y. Ahmad and other colleagues in the Department.

I also wish to acknowledge the following eminent scholars for their interest towards my academic progress and success: Prof. I.A. Aliyu, Prof. A.S. Mika'eel, Prof. A.M. Bashir, Prof. Zakari Muhammad, Prof. A.S. Kantudu, Prof. Bashir Tijjani, Dr. Baffa A. Umar and Prof. Tijjani Abubakar.

Finally the ultimate success of a study of this nature would not have been possible without the over-whelming support, encouragement and endurance of my wife, Hajiya Masa'uda Abdullahi Yakasai. God bless you and our children for your sacrifice, patience and understanding, Amen.

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### **ABSTRACT**

*This research was necessitated the huge amount of money annually budgeted to fund Nigerian Universities, and the fact that the quantum of money expended does not have significant impact on labour turnover. Support funds generated from internal and external sources to complement government effort do not improve the labour turnover condition. To address these problems, the study assesses the impact of labour turnover on the productivity of academic staff in Ahmadu Bello University, Zaria. In addition, it also evaluates factors responsible for and assesses the perception of academic staff on the significance of labour turnover factors in the University. To achieve the stated objectives, descriptive/survey research method was adopted for the study. The main instruments used to collect relevant data for the study were questionnaires and documentary sources. Questionnaire responses were collected and analyzed. Chi-Square technique was employed to test the three hypotheses formulated for the research. The study found that responses on factors that determine labour turnover, show that remunerations particularly for the academic staff of the University consider or inform their decision to stay in service. It was also revealed that contribution received from internal and external sources have positive relevance to labour turnover. This study also recommended that adequate funding is needed in order to enhance effective learning and research and the retention of academic staff. There should also be judicious utilization of support funds generated internally and externally by the University management.*

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the study

Education is a necessary factor for the development of any nation. It involves all efforts geared towards acquiring, improving and establishing knowledge. The University is the peak of manpower development since as a tertiary institution its responsibility is that of conducting research and the advancement of knowledge. Thus, Education remains the bedrock upon which man builds his civilization, solves the problems of existence and overcomes the challenges of his environment. This realization has led to the high demand for educated manpower by both developed and developing nations. The result of this has been the expansion of higher education through the establishment of more government sponsored higher institutions in Nigeria.

However, deteriorating condition of service in the university system and the high demand for sound educated manpower in the society has over the years led many academic staff to leave the services of the university. Those who have remained are normally engaged in one private practice or the other. This situation may persist as long as the university is unable to offer attractive salaries and research opportunities which would encourage greater commitment by the staff. The inability of Universities to retain their senior staff has become a real source of labour crisis not only confined to the indigenous staff but also the expatriate staff. Umar (1981) complained not only about the difficulty of attracting expatriate staff but also the problem of retaining those who are already employed by the Universities. In the 1981/82 academic year, there were only 1, 078 expatriates out of 7,980 academic staff in the universities. Unlike the 1963/64 academic year when there was only 422 non Nigerian academic staff compared to 248

Nigerian academics. That is to say, there was a significant drop from 63% in 1963/64 to 20.5% in 1981/82 academic year (NUC, 1982).

The demand for manpower to contribute to the task of national development has led to the enormous growth of the Nigerian university system over the years. This is manifested in the alarming increase in students' enrolment, staff strength and physical expansion of educational institutions in the country. By the 1984/85 academic year, the students' population rose from 3,681 to 125,929 as a result of the number of universities to 24 in 1983. This situation increased the number of faculties from 11 to 108 (NUC, 1984). It is obvious that the implication of this development in the university educational system in the country has brought the need for more resources so as to realize the stated objectives of the university system. As an institution of higher learning the university may not be in the position to achieve its laudable objectives of teaching, research and societal enlightenment without the prerequisite resources, particularly human resources. Nigerian Universities therefore, will need to attract, select, utilize, develop, motivate and retain qualified staff in order for them to discharge their functions effectively and efficiently. This is important because a University's prestige and quality at both local and global levels squarely rest upon the quality of its staff strength.

## **1.2 Statement of the Problem**

The high rate at which University teachers quit their jobs in Nigeria is indicative of the problems facing the university system in Nigeria. Available evidence indicates that lecturers quit their jobs usually as a result of unsatisfactory situations such as low motivation and poor conditions of service. The Longe Commission (1991), identified poor facilities, increased enrolment, under funding and poor staffing as problems of Nigerian Universities. Other problems facing

University management in Nigeria according to Ibukun (1997) and Ajayi and Ayodele (2002) include: brain drain syndrome; graduate unemployment; volatile and militant students' unionism; poor students' welfare service; rising cost of University education; finance; the unmanageable social demand for education; the dichotomy between state and federal universities; drug addiction and secret cult; autonomy; conflict and so on.

These problems have resulted in making the university environments generally poorly conducive for effective teaching – learning process; hence, some lecturers prefer to look out for other job opportunities that are more favourable. On the dilemma of the teaching staff, Sanda (1991) observed that lecturers are living under the fear of rationalization, retrenchment or retirement; and they often choose to find their exit before the powers that give them marching orders. Therefore the reasons advanced for lecturers leaving the University system include their increasing pauperization, diminished power and prestige, poor salaries and conditions of service, which are no more commensurate with their services or contributions. Added to these is the fact that such attributes, which normally keep the academic mind alive in the universities – rich collection of up to date books and journals in libraries, functional laboratories, bustling seminars, research grants, have all become rare commodities. Given this poor state of Nigerian Universities, low morale, poor attitude to work, brain drain, lack of linkages with other Universities abroad has become the state of the Nigerian University. The implications of a good University system for the country's future growth and development cannot be overemphasized. There is therefore the need for a study such as this which will examine the impact of labour turnover on the performance of academic staff in Ahmadu Bello University, Zaria.

This study was primarily necessitated by the huge amount of money annually being budgeted to fund Nigerian universities with apparently no significant impact on the labour turnover on the

performances of University staff. Even when Expatriate academics are invited and paid on contractual agreement terms with the aim of balancing the equation of lecturers-students ratio no remarkable achievement has been recorded. In situations where indigenous lecturers are employed the number of those leaving the University system continues to outweigh the number of those coming in. Government Agencies, such as the Education Trust Fund (ETF) was created to shoulder responsibilities of capital projects in Nigerian universities, but still, the quality of education in terms of the expected standard has been very discouraging due to the problem of labour turnover. Non-governmental agencies, such as the McArthur Foundation and other international philanthropists are assisting a great deal to complement the efforts of the government, but the impact of all these on the rate of labour turnover has been below expectation.

There is therefore the need to investigate and evaluate the effects of labour turnover that seemingly impact on the efficiency of the University system. This situation has become a source of concern not only to the Universities per-se, but to the nation at large. Okpapi (1984) undertook a research on labour turnover in Ahmadu Bello University, Zaria, and his findings have shed some light on labour turnover issues in Ahmadu Bello University. However one of the weaknesses of the study is that it neither indicated factors that exerted more influence on-the stability and retention of University staff nor did it state the extent of the impact of labour turnover on the performance of academic staff. The Questionnaire distribution procedure of the study was not based on the contribution of the respective units, departments or centres of the University. Also no hypothesis was formulated and tested.

Gadzama (1979) similarly conducted a research on labour turnover in Nigerian Universities (focusing on Ahmadu Bello University, Zaria) but the study did not come up with explanations

on the impact of labour turnover on the performance staff. The researcher admitted in the work that as a result of time constraints, he was only able to administer a limited number of questionnaires to former academic staff around Zaria. Again, the study did not test any hypothesis on the perception of academic staff on the perceived labour turnover. In her survey study, Anthonia (2000) examined labour turnover situation in four Nigerian Universities: Ahmadu Bello University, Zaria, Bayero University, Kano, University of Benin and University of Ilorin, but the study again concentrated on issues other than those that are performance related. The major weakness of her study is related to the sampling method was adopted. The sample size used in the study was haphazard and not scientific as no sampling technique was employed to support the sampling used in the study. Owing to the shortcomings of these studies as highlighted above which are the results of methodological points of view, of tools used or of sampling techniques used and owing to the passage of time, this study seeks to carry out a similar study taking into considerations the gaps created by the preceding studies. This current study re-examines and assesses the perception of labour turnover conditions in Ahmadu Bello University with the view to addressing those identified research gaps and to offer some useful suggestions to assist in the management of labour turn over, in the University system.

### **1.3 Research Questions**

The study aims at addressing the following research questions:

- i) What is the impact of labour turnover on the performance of academic staff in Ahmadu Bello University?
- ii) Are labour turnover factors perceived to be significant in Ahmadu Bello University?



- iii) What is the perception of Ahmadu Bello University's academic staff on support funds in relation to labour turnover?

#### **1.4 Objectives of the study**

The main objective of this study is to examine the impact of labour turnover on the performance of academic staff in Ahmadu Bello University.

Other specific objectives of the study include:

- i) To evaluate factors responsible for labour turnover in Ahmadu Bello University.
- ii) To assess the perception of academic staff on the significance of labour turnover factors in Ahmadu Bello University, Zaria.
- iii) To evaluate the perception of academic staff on support funds in relation to labour turnover in Ahmadu Bello University.

#### **1.5 Hypotheses formulation**

In order to guide this study and achieve the objectives of the study the following hypotheses are hereby formulated for testing:

H<sub>01</sub>: Labour Turnover does not have any significant impact on the performance of academic Staff in Ahmadu Bello University, Zaria.

H<sub>02</sub>: Labour Turnover Factors are not perceived as significant by academic staff of Ahmadu Bello University, Zaria

H<sub>03</sub>: Academic staff do not perceive as relevant external support funds to labour turnover in Ahmadu Bello University, Zaria

## **1.6 Significance of the study**

The importance of this study stems from the role played by Universities in the production of manpower for the overall advancement of the nation. Therefore, the desirability of an adequate, stable and productive labour force cannot be over-emphasized. However, there have been a number of studies that are related to the University system, but to the best of our knowledge, we have not come across any study that focuses on the impact of labour turnover on the performance of academic staff in Ahmadu Bello University, Zaria. Similar studies conducted have one weakness or the other. Part of the weaknesses of such studies include, lack of hypothesis to be tested, and the fact that questionnaire distribution is not based on any scientific criteria, as in the case of Anthonia (2000) and where there is questionnaire only limited number was administered due to time constraint as claimed by one of the researchers (Gadzama, 1979). The current study is significant in order to address the above mentioned shortcomings. The result of the study is expected to be of significance to:

- i) The regulatory/supervisory authority(ies) by serving as an avenue through which the issue of appropriate lecturer-students ratio could be addressed. This will facilitate the efficiency of teaching and learning process by providing adequate infrastructures.
- ii) University managements on the need to employed to adequate and appropriate staff and retaining for the good of the system.
- iii) It is also envisaged that this research will prompt other studies in the same area with a view to finding lasting solution to the labour turnover problems in the University.

### **1.7 Scope of the study and limitation of the study**

The study deals with the impact of labour turnover. On the performance of academic staff in Ahmadu Bello University. The study covers ten years, from 2000 to 2009. This period witnessed a number of labour disputes between the university management and its academic staff. The reason behind selecting Ahmadu Bello University is not only due to the fact that, it is the largest University in Africa, South of the Sahara in terms of number of staff and students enrolment but because of the University's standing and recognition as a *seat of knowledge* for academic excellence. Frustration as a result of promotion stagnation compounded the problem of labour turnover in Ahmadu Bello University, Zaria. Private universities were granted licenses and the tendency for transfer from public to private universities was very obvious as a result of poor condition of service.

The following constitute the limitations of this research. First, it should be noted that the questionnaires were restricted to the serving academic staff of the University. The questionnaires sought their perceptions on the factors responsible for labour turnover. The academic staff that left the service of the University were not involved in the study since there were no forwarding addresses by which to contact them. Hence the researcher had to rely on the existing academic staff as the respondents to the questionnaires.

Second, changes in the economic conditions could be a limitation. Condition under which the study was conducted was not favourable. In the favourable economic situation certain variables could change consequently change result of the study. That is from depressed to boom economy.

## **1.8 Definition of Operational Terms**

This section is concerned with the meaning of words or terms used in the work.

**Labour turnover:** Is a term in personnel management used to describe the movement of staff in and out of the employment of an organization.

**Separation:** Is a formal word used to describe the end of an employment contract in an organization.

**Engagement:** Is a process by which an employee joins the employment of an organization.

**Instability:** Is a situation where by an organization is unable to retain its labour force over a period of its existence or a given period.

## **1.9 Plan of the Study**

The study is divided into five chapters. Chapter one presents the background to the study, the statement of the problem and research questions. Other areas include the objectives of the study, research hypotheses, significance and scope of the study. The second chapter undertakes a review of related literature on conceptual issues, previous studies and guiding theories, with a view to developing a theoretical framework for the study. Chapter three describes the methodology of the study. Chapter four analyzes the data gathered while chapter five contains the summary and conclusion to the study offering solutions to guide policy making and stake holders in the management of labour turnover related issues in the University system in Nigeria.



## CHAPTER TWO

### LITERATURE REVIEW AND THEORETICAL FRAMEWORK

#### 2.1 Introduction

This chapter reviews the concept of labour turnover and its relevance to academic institutions of higher learning. Specifically, the chapter focuses on the meaning of Labour turnover its taxonomies, causes, classifications, measurements, effects and ways of controlling. It also involves review of some previous studies undertaken on labour turnover particularly in academic institutions of higher learning. The theoretical framework provides a working frame as a guide to the study.

#### 2.2 The Concept of Labour Turnover

Price (1977) defines turnover as the degree of movement across the membership boundary of an organization. This implies that labour turnover is the movement of employees in and out of an organization. Coming into the organization is referred to as accession or engagement, while leaving the services of the organization is referred to as separation or departures. This definition is also shared by Meggrison (1981), Graham (1980) and Cuming (1980). Michael *et al.* (1982) define Labour turnover as “the proportion of people leaving the firm in the course of one year”.

According to Strauss and Sayles (1981), turnover is a measure of change in the workforce. This change can be affected by new hiring and recalls (accessions), by layoffs and quits (separations) and by voluntary registrations. Denyer (1980), Boella (1980) and Mobley (1982) have tended to emphasize the movement of employees out of the employment of an organization. Accordingly,

Mobley (1982 a) defines turnover as voluntary accessation of membership in an organization by an individual who receives monetary compensation for participating in that organization. This definition emphasizes voluntary behaviour because prevailing turnover models primarily seek to explain what motivates employees to withdraw from the work place of an organization. This conception therefore, focuses on separation from an organization and not on accession, transfer, or other internal movements through an organization. It also excludes individuals who work without payment. According to Umar (2006), Mobley's (1982 a) definition is limited because it recognizes the voluntary movements of employees out of an organization while completely ignoring the involuntary movements. Voluntary movement here refers to employees' choice or willingness to leave. Involuntary movement therefore reflects on employer's decision to terminate the employment relationship. Drucker (1980) perceived Labour turnover as the anticipation of structural and technological changes in the organization and the economy and the inability of an organization to return workers who will have to be laid off. Robert (1957) defined Labour turnover as "the measurement of the number of employees leaving a company, which can be calculated by dividing either the total separations or the average number of the work forces and expressed the result as a percentage".

According to William (1978), turnover is the net result of the exit of some employees and entrance of others to the organization. ACAS (2003) perceived labour turnover to occur when workers leave an organization and need to be replaced by new employees. This perception centres on the ideas of replacement and considers turnover to have occurred only when the cycle has been completed from the hiring of a worker to the hiring of his successor when he leaves. Rothwell's (1980), Mobley's (1982), Boella's (1992), Bevan's (1987), Johnson's (1985) and Mars *et al's*. (1976) definitions of Labour turnover focus on workers leaving the organization.

According to Rothwell (1980), employee wastage is a better term for labour turnover because it reflects a loss and cost to both the individual and the organization. She argues that people leave organizations for three main reasons:

- i) Due to employer initiative (e.g. dismissal and layoffs)
- ii) Due to unavoidable reasons (e.g. retirement or family problems)
- iii) Due to avoidable reasons (e.g. job dissatisfaction and personal problems).

Following all the conceptual definitions of labour turnover given above, the study concurs and adopts the one given by Price (1977) and also shared by Meggrison (1981), Graham (1980) and Cuning (1980). The justification for the selection is not due to consensus by authorities, but because of its immense relevance in the movement of employees in and out of an organization, which is one of the major factors that this study addresses.

### **2.3 Causes of Labour Turnover**

Organizations can employ the following variables to find out the causes of labour turnover. Hom and Griffeth (1995) reviewed these variables as follows:

- i. Demographic and personal characteristics
- ii. Organization and work environment
- iii. Job content and intrinsic motivation
- iv. External environmental factors
- v. Variables of withdrawal behaviours



The study concurs with the opinion that an understanding of the variables mentioned above is necessary in comprehending the problem of labour turnover in the University system.

### **2.3.1 Demographic and personal characteristics**

Demographic factors that have been found to be consistent with a number of researches in the past include age, tenure and level of income. Several studies for instance found a negative relationship between turnover and age, tenure and income level. Price and Mueller, (1986) educational qualification found to be positively associated with turnover because more educated and qualified employees quit more often. Wai and Robinson, (1998) shared the same view.

Findings of the studies on the relationship between gender and turnover are mixed. While, Cotton and Tuttle (1986) found that females are more likely to leave than males, Wai and Robinson (1998) found no relationship between gender and turnover.

### **2.3.2 Organization and work environment**

This has to do with employees' remunerations, corporate leadership style, tax and promotions

- a) **Compensation:** Contrary to the view that satisfaction with salary and pay are strong correlates of turnover (Gomez-Meija and Balkin, 1992a), Milkotich and Newman (1993) found very little in common with view. This finding may have been caused by their omission to include other forms of compensation such as fringe benefits and incentive pay (Heinemann, 1995). More so, turnover studies have considered pay practices in a single organization or occupations and such constraints may therefore underestimate the compensation impact on labour turnover (Steel and Griffeth, 1989).

- b) **Leadership and Supervision:** Undemocratic forms of leadership and poor supervisory relationship with junior employees are found to correlate with labour turnover.
- c) **Group Relations:** Price and Mueller (1986) found that poor group relations among peer groups and non-integration correlate with labour turnover. The underlying mechanisms of value conflicts and miscommunication among heterogeneous members have demonstrated that heterogeneity within work group induces decision in staff members to quit (Jackson *et al.* 1991).
- d) **Role Stress:** In their studies, Katz and Kahn (1978) found that role overload and role conflict cause labour turnover in organization. According to them, role overload is a situation where an individual employee is carrying out many roles or tasks as his/her job designation. Role conflict represents having conflicting roles or responsibility such as reporting to two supervisors at one and the same time.
- (e) **Promotion:** Satisfaction about promotion and perceived opportunities for promotion reduces the incidence of labour turnover. However Carson *et al.* (1993) stated that, actual promotions by contrast strongly predicted turnover. This study disagrees with this view because as employees are being promoted they tend to be more dedicated and committed in the discharge of their responsibilities.

### 2.3.3 Job content and intrinsic motivation

- (a) **Job scope:** Loner *et al.* (1985) are of the opinion that labour turnover and the challenges of the work duties completely correlate with job incumbency. That is to say, employees whose job scopes are less complex and unchallenging associate with are likely to be affected by labour turnover. This association is however moderated

- by the strength of growth need (GNS). More so, the strength of growth needs variable reflects an individual's need for the fulfillment of higher order needs, for instance autonomy or personal growth. This implies that, the motivating effect of job characteristics will occur only for individuals with high strength of growth need.
- (b) **Routinization:** This has to do with the degree to which a repetitive job has been found to correlate with turnover. Employees performing routine jobs are more likely to quit from the organization (Price and Mueller, 1986).
  - (c) **Intrinsic motivation:** Presence of intrinsic motivation reduces the incidence of withdrawal from an organization. This means therefore that poor intrinsic motivation or absence of self-esteem commonly leads to labour turnover.
  - (d) **Job Involvement:** In this respect, employees who feel fully involved in their jobs are not likely to quit their organizations. This factor is considered to augur well for job retention.

#### **2.3.4 External environment**

The availability of alternative chances of employment is perceived to have a direct and positive relationship to the issue of labour turnover in several organizations (Steel and Griffeth, 1989; Hom *et al.* 1992), and the data showed that the correlation is moderate. According to the Labour Economists such as Mobley (1982a) there are strong relations between plentiful employment opportunities elsewhere and the rate at which staff quit from an organization.

#### **2.3.5 Variables of withdrawal behaviours**

- (a) **Intent to leave:** This is generally considered as a direct antecedent to actual withdrawal. This is so because intention to leave has been a viable predictor of actual

leaving behavior. This summation is buttressed by a host of empirical research (Bluedom, 1982, Steel and Ovalle, 1984).

- (b) **Expected utility of withdrawal:** Studies have indicated that many employees do not impulsively quit over poor working condition without considering the possible results. In other words, employees leave after a conscious calculation of perceived cost and benefit. This determination of expected utility informs whether or not dissatisfied employees would ultimately quit (Bagozzi and Warshaw, 1990). This research agrees with this view on the ground, that satisfied employees can be induced by future and better prospects by other organizations.
- (c) **Lateness and absence:** This is another variable that cause or lead to labour turnover and is consistent with Mitra *et al.* (1992) Meta – analysis. They found out that employees who exhibit these negative attitudes are more likely to quit their employment than those who do not.

In essence, the above sub-section tried to identify the causes and reasons for labour turnover. The variables reviewed have been found to correlate with turnover, although, the strength of the relationship between variable and labour turnover seems to vary as a result of some other moderators.

## 2.4 Classifications of Labour Turnover

Labour turnover is basically classified into voluntary and involuntary, avoidable and unavoidable, functional and dysfunctional as well as intra-occupational and inter-occupational (price, 1977; show *et al.* 1998; Hom and Griffeth, 1995; Abelson, 1987; Heinemann, 1985; and

Boella, 1992). In this section, we will review the classifications under each heading as provided by these authors.

#### **2.4.1 Voluntary and involuntary turnovers**

According to Abelson (1987) people leave organizations for either voluntary or involuntary reasons. Voluntary turnover or the act of quitting reflects an employee's decision to leave an organization. Involuntary turnover or a discharge, reflects an employer's decision to terminate the employment relationship with his/her employees (Shaw *et al.* (1998) and (Heinemann, 1985). This implies that voluntary turnover is the case of termination initiated by an employee (e.g. leaving one's current employer for a higher-paying job) while involuntary turnover is initiated by the employer (e.g. layoffs and dismissals). The causes of voluntary as opposed to involuntary turnover are likely to differ. Boella, (1992) opines that while voluntary turnover are often thought to be influenced by personnel policies and practices that influence employee satisfaction. Alternatively, involuntary turnover often depends on the quality of the initial selection decisions (i.e. when employees must be dismissed) and permanent disability (i.e. when employees must be laid off). The distinction between voluntary and involuntary turnover may however be artificial. In many cases, the decision is a function of both the organization and the individual. A typical example is where a marginally performing employee agrees to quit before being laid off. Price (1977) argues in this light that when an employee leave a job at a spouse's insistence such is involuntary turnover.

Haniseh and Hulin (1991) suggest that early retirement is a form of voluntary quitting. Ideally, research should accurately measure the various kinds of turnover ranging from the completely voluntary type when for example the employee takes a better job or through mutual agreement

when the employee agree to quit because of disagreements with management or to the completely involuntary kind when for example the organization layoffs the employee in order to reduce the work forces. The foregoing scenario does not completely provide answers in terms of the number and scope of turnover. Some other reasons have been advanced in labour turnover surveys and in personnel files to determine the reasons for and the nature of the departure by an employee (Mobley *et al.* 1979). Campion (1991), states that former employees and their supervisors may report multiple reasons for quitting. For example, an employee may formally classify a dismissal as a voluntary departure to protect his/her reputation or classify a voluntary departure as a layoff to enable a leaver to qualify for unemployment compensation. Campion (1991) found that agreement on all reasons between these two sources and personnel files were as low as 25 per cent. Lack of agreement along with the possibility of self serving and retrospective biases affecting responses, calls into question whether reasons for leaving an organization can be reliably measured at all. Moreso, where surveying those who have previously quitted organization is impossible, management's perspective on who initiates the quitting of an employee may be the only information available to researchers (Maertz and campion, 1998).

#### **2.4.2 Avoidable and unavoidable turnover**

Abelson (1987) and Campion (1990) are of the opinion that those quitting for avoidable reasons are considerably different from both unavoidable "leavers" and "stayers" and they propose that the failure to recognize this distinction may help to explain weak prediction of voluntary turnover. However, avoidable voluntary turnover is considered more serious by managements than the unavoidable one (Dalton, *et al.* 1982). Availability of an instance of turnover is a matter of perspective; the existing conceptualizations and measures define at least three distinct themes.

According to Abelson (1987) and Campion (1991), the common themes involved are: (i) whether the employee's stated reasons for leaving are organizational or non-work factors (ii) whether the employee believes the organization would offer an inducement that would make her stay, and (iii) whether or not the organization actually could induce the employee to stay. Abelson (1987) opines that organization-based reasons have been thought to indicate avoidable turnover, while non-organizational reasons indicate unavoidable turnover. Based on subjective judgements, they (Abelson, 1987 and Campion, 1991) found that those who gave reasons for quitting, judged to be avoidable, had lower satisfaction and commitment than unavoidable leavers and stayers. It could be observed that negative attitudes are more associated with organizational reasons than non-work reasons. However, non-work reasons may be more difficult for a management to understand and address than organizational reasons. This conceptualization according to Abelson (1987) needs to be properly understood because non-work reasons for quitting (e.g., family responsibilities or desire to relocate) cannot be offset by any potential organizational inducement.

Contrary to the above view, a reason classified as unavoidable for one individual and situation may seem very avoidable for another. Perceived availability reflects whether the employee or supervisor believes the organization would have been able to do something to make the employee stay. Campion (1991) found that perceived availability was negatively associated with measures of voluntariness and satisfaction of the employee. Maertz and Campion (1998) identify the interactive perspective called Actual availability.

Actual availability, assumes that nearly all cases of quitting are potentially avoidable with enough inducements, except for the rare individual whose resolve to quit is unshakeable at any

price. It basically reflects whether the organization currently possesses and is willing to offer necessary inducement to the employee, determined through some type of interaction. In short, this perspective changes the meaning of unavoidable turnover, from reasons originating outside the organization to situations of quitting that the organization chooses not to stop or cannot stop by way of negotiation and inducements.

In essence, the distinction between avoidable and unavoidable turnover was designed to show the organizations potential for controlling turnover (Abelson 1987). According to him avoidable leavers are less committed and less satisfied than either unavoidable leavers or stayers. And from organizational view point, an intervention strategy for reducing avoidable voluntary turnover is of the most interest.

### **2.4.3 Functional and dysfunctional turnovers**

The proponents of this sub-classification are Abelson and Baysinger (1984). The concept aims at redefining turnover criterion. Functional turnover is when poor performing employees leave an organization. The dysfunctional type is when good performing employees leave. It should be noted that only functionality is defined here in terms of the organization evaluation of the individual. Only dysfunctional turnover is considered bad for the organization. Dalton *et al.* (1982) found that about half of the cases of dysfunctional turnover were therefore seen as unavoidable. Organizational turnover were unavoidable. Organizational and environmental determinants of functional and dysfunctional turnover were investigated by Park *et al.* (1994). On the one hand they submit that functional turnover is negatively associated with levels of pay and unemployment and positively associated with the availability of individual incentive programmes. On the other hand, dysfunctional turnover is positively associated with the presence of group incentive programmes and negatively associated with the presence of unions.



A distinction should be made between those who leave their organizations for others and those who leave their occupations or the workforce completely (Jackofsky and Peters; 1983). Wright and Bonett (1992) stated that intra occupational turnover is job movement within a particular occupational grouping while inter occupational turnover involve movement to any job external to the targeted occupational grouping. In a study on the effect of turnover on work satisfaction and mental health, Wright and Bonnet (1992) found that employees who changed Jobs and occupations showed greater increases in both work satisfaction and mental health than employees who only changed jobs or employees who remained in their initial positions.

## **2.5 Measurements of Labour Turnover**

Labour turnover has attracted numerous measurement proposals so diverse in definition as well as mathematical representation. Various formulae have been put forward by different authorities in this regard. Yet the aim of the quantification of labour turnover rate is the same. That is a contribution towards enhancing productivity through a stable and productive labour force. The following have identified and come up with various methods of measuring Labour turnover: Rothwell, 1980); Bramham (1992); Bevan *et al.* (1997) and ACAS, (2003). The methods are: Labour turnover index, stability index, half-life index, cohort analysis and census analysis.

### **2.5.1 Labour turnover index**

This method is also known as the “separation rate” or the “crude wastage rate”. In this method the number of leavers over a particular period is considered as a percentage of the number employed during the same period. The following illustrates how this is calculated:

$$\text{LTI} = \frac{\text{Number of leavers} \times 100}{\text{Average number employed}}$$

(Source: Mukhtar, 2004:88)

According to Beven *et al.* (1997) the period in question could be shorter or longer than a year although a year is commonly used as the period. However, a special circumstances, such as sudden huge increase in the workforce size, then the average number working is usually taken to be the number working at the period. This is then added to the number working at the end.

In order to recalculate the index each month (or quarter) for the previous 12 months, a moving annual index is suggested by Bramham (1992). This index to our understanding has some drawbacks as follows:

- (i) The separation rate is only a crude measure of the labour turnover problem and makes no distinction between new starters and the experienced workers who can be much more difficult to replace. The management ought to look at the length of service distributions of the groups of employees that are being considered in order to interpret and understand wastage. For instance, in a situation of rapid recruitment which is followed by a management wanting to curtail recruitment, the index, reflecting changes in the length of service distribution can in fact give misleading indication of the firm's manpower.
- (ii) The method does not really reveal differences within organizations in terms of gender, age or grade and job.
- (iii) It does not show whether one job is filled 10 times over or 10 employees have left. It only shows the number of leavers, not the specific jobs being filled.

### **2.5.2 Stability index**

This method illustrates the extent to which the experienced work force is being retained (Bramham, 1992) and is calculated as follows:

$$SI = \frac{\text{Number of employees with at least 12 months of service now}}{\text{Total number of employees one year ago}} \times \frac{100}{1}$$

(Source: Murhtar, 2004:90)

Let us assume that 80 lecturers are the current workers employed for one year or longer, and 125 as the total number of workers employed a year ago. Hence, the stability index will be:

$$SI = \frac{80}{125} \times \frac{100}{1} = 64\%$$

That is to say, the organization was able to retain 64% of its experienced workforce during the period in question. Stability index is most useful in comparisons over a period or with other similar organizations.

Umar's (2004), work has shown how the stability index can be used to determine whether the number of people leaving are made up of new recruits or those who have worked for the organization for at least one year. This could serve as a guide in determining the steps or actions to be taken to control the turnover rate. The characteristics pattern of labour turnover is that it is high for new starters. This trend decreases as such workers stay longer on the job. The degree to which this pattern applies in any organization will naturally vary because many more workers leave after a short length of service than after a long period. This is likely to be true even when the total number of leavers is small, that is, when labour turnover is low. However, this serves as a limitation to the usefulness of the method.

### **2.5.3 Half-life index**

Half-life index refers to the time at which an initial intake of a defined entrant group has been halved. This method (is useful for intra-ministry/parastatal comparisons) and is attributed to the work of Bryard (1965). Its significance includes:

- i. It provides a measure of stability that can be related to other jobs because of being independent of length of service. That is to say organizations can compare half-lives to indicate real difference in wastage and not those resulting from recent recruitment.
- ii. It serves as a guide to recruitment. Its main drawback is that it may take a considerable period of time to compile, particularly the intra-ministry/parastatal comparisons. Bramham (1992) has posited that a relatively volatile group such as labourers may have a half-life of a few months whereas a group of graduates in the gas industry has been found to have a half-life of over four years.

### **2.5.4 Cohort Analysis**

Cohort analysis is a method used by managers to forecast wastage in industries or organizations over a given period of time. That is, it is concerned with the relationship between wastage and length of service at a given time. This analysis usually deals with a homogenous group (Bramham, 1992). Employees under this group have similarities in terms of personal characteristics, occupation and time of recruitment. This then gives a survival curve which shows the percentage of employees surviving (and remaining) at different points in time. This is calculated using the following formula:

$$\frac{\text{Number remaining at a given time} \times 100}{\text{Number engaged at start}}$$

(Source: Umar, 2006:70).

In his opinion Rothwell (1980) stated that in practice, smallness of groups will lead to aggregating with a consequent effect on the reliability of forecasts. The shortcoming of cohort analysis is that the forecast assumes that time is constant (that is, what occurred in the past will occur in the future) without taking into cognizance the changing social and economic conditions.

According to Bevan *et al.* (1997), the measure should therefore be used with caution, especially where dramatic changes such as marked shifts in unemployment levels or contraction in the firm may change the social structure of the works force and therefore underlying the behaviour pattern of wastage. In the event of a change, a management will be better able to anticipate or respond to the new situation if it can reliably measure wastage (Bramham, 1992).

### **2.5.5 Census Analysis**

Instead of following identical groups through time (when often no sufficiently homogenous groups exist) this method involves taking a census or 'snapshot' of the total situation. Census analysis method involves detailed monitoring of the wastage experienced, over a relatively short period of all members of the identical group to give survival rates. The group can be a 'skilled group' or an 'Age group' within a given department/section or unit. Which ever is the case, three sets of data are required:

- i. employees number at the beginning of the census
- ii. employees number at the end of the census
- iii. the number of those who leave during the census.

However, the duration of length of service ought to be known in each of the above cases.

It is also very crucial to stipulate time period which could be one year or less. The

benefit of this method is that, data is more readily available for whole groups in employment at the same time rather than for groups recruited at a given time. Recent data are adopted and this makes it more accurate as the environment changes less over shorter periods. The calculation of probability of recruits leaving and those retained enables the forecast of future manning levels and subsequently determines future recruitment programmes.

## **2.6 The Effects of Labour Turnover**

It is an established fact that labour turnover affects organizations and their employees in a number of ways. However, the consequences of labour turnover could be negative or positive on both organization and the employees leaving the organization.

### **2.6.1 The negative impact on organization**

(a) **Staffing and training cost:** since labour turnover is associated with personnel loss, its economic consequence can not be over-emphasized. The negative consequences of labour turnover to the organization have been observed by researchers and practitioners alike (Cascio, 1991). According to Cascio (1991) exit expenses could be divided into three main components:

- i. Separation costs which quitting produces directly (e.g. cost of exit interviews).
- ii. Replacement costs comprise expenses incurred to replace leavers (e.g. advertising, expenses for job vacancies).
- iii. Training costs which comprise a company's expenditures to orient and train replacements and opportunity costs caused by inefficient production.

(b) **Impact on productivity:** Price (1989) contends that voluntary quitting affect organizational productivity negatively. This is so because leavers (often) miss work and hence their productivity deteriorates before their departure. On the other hand, the new replacements may not necessarily be as productive as the leavers in terms of quantity and quality because of differences in experience. According to Sheridan (1992) Public accounting firms in England lose \$47,000 whenever a new accountant replaces a third year veteran who leaves. In summary therefore turnover may reduce productivity because of the leavers declining productivity, the inexperience of the replacements as well as the workflow disruptions.

(c) **Poor service delivery:** Labour turnover among service personnel industries impairs customer service because understaffed offices or stores delay or are unable to deliver service. And unlike experienced leavers, new employees may also provide less competent or less personalized service because they do not know the units. According to Bowen and Schneider (1988), Labour turnover interrupts the transmission of service values and norms, which are essentially of high quality service to the successive generations of employees.

(d) **Loss of business chances:** The loss of experts that are key contributors to the organization can negatively affect business opportunities (Mobley, 1982a). For instance, the loss of professionals and highly skilled personnel, such as scientists and engineers can lead to procrastination over or deter the introduction of new product or service and consequently threaten future profitability in new markets.

(e) **Demoralization of employees:** According to O'Reilly *et al.* (1989) labour turnover would not only erode the morale but also the stability of the retained employees. Voluntary quitting from an organization is not only an indication of job dissatisfaction, but also a signal for Greener pastures or more lucrative appointments. This can create a bad feeling in the minds of the remaining employees and eventually could lead them to also initiate withdrawal processes from the organization. Mueller and Price (1989) perceived that, rising quit rates in hospital units foreshadowed an inability to keep staff, although quit rates did not affect the unit's morale or integration.

## 2.6.2 Positive impact of labour turnover on an organization

- (a) **Introduction of new knowledge and Technology:** Labour turnover could impact on an organization positively, particularly when the entrants are highly skilled with sophisticated ideas. Katz (1980) contends that, long serving employees become ineffective as a result of relying on customary work patterns and the tendency to insulate themselves from outside information or inventions that might threaten their comfortable but predictable work habits.
- (b) **Labour costs saving:** Balkin (1992) stated that voluntary turnover could help organizations control or lower labour costs by reducing the workforce as they face stiffer global competition. Hence, this could be a less costly way of downsizing than that of layoffs.
- (c) **Promotion prospects for stayers:** Scholars such as, Staw, (1980) Mobley (1982a) have argued that one of the benefits of labour turnover to stayers is that, it brightens their



prospects for advancement and promotion. It would not only reduce competition for such promotion but generally empowers subordinates.

- (d) **Prevents stagnation and enhances innovation:** As part of the potential positive consequences on an organization, labour turnover is perceived to prevent stagnation and complacency. It facilitates change and innovation and also displaces poor performers in an organization (Dalton *et al*, 1982) and (Staw, 1980). This situation is the functional turnover type when poor performers leave good performers stay in an organization. As mentioned earlier, dysfunctional turnover occurs when good performers leave or poor performers stay in an organization. However, dysfunctional turnover represents a loss to the organization because replacements for those who have left are likely to be of lower caliber. However the departure of poor performers is considered as beneficial to an organization because it is likely to be followed by the employment of better performers.

### 2.6.3 The negative consequences for the leavers

Lay off employees are likely to experience the following challenges:

- (a) **Stress in new appointment:** Hom and Griffeth (1995) consider stress as “transition stress in new employment”. The leavers’ new employment may not only (likely) disappoint them but fail to live up to their expectations, therefore eliciting dissatisfaction and subsequent turnover (Wanous, 1992).

- (b) **Relocation cost:** Leavers may also bear the relocation costs particularly when moving to new geographical regions especially if reimbursement from new employers is not given. Living costs may also increase prior to relocation to a new job. Other associated intangible costs could include cost of family separation, due to a spouse’s

employment, children's education or lack of suitable accommodation. Sometimes additional costs occur because when leavers relocate their families remain behind.

#### **2.6.4 Positive consequences for the leavers**

Generally, Leavers may assume better opportunities in terms of office status, higher salary, safer environment or community and more attractive climate. That is, leavers are likely to occupy sensitive and lucrative position as against their former status, especially coming from places where promotion is stagnant (e.g. Ahmadu Bello University, Zaria from 1970 to the early millennium). Better remuneration with conducive working climate or environment are positive consequences for leavers. These will enhance leavers' standard of living in the society.

### **2.7 Ways of Controlling Labour Turnover**

Deterrent measures against labour turnover are of paramount importance, to human resource managers. Thus, steps should be taken to address the problem, even before it becomes critical. One of the ways of curtailing labour turnover is Brown's (1967) suggestion that institutions should "make adjustments" either by planning less ambitiously or accepting less qualified staff or offering attractive conditions of service. He states that, these adjustments should be in the form of offering higher salaries and ranks than those proffered by competitive employers. Also, welfare facilities and other better working conditions should be made available.

#### **2.7.1 Turnover of new employees**

According to a report by Advisory, Conciliation and Arbitration Service (ACAS) (2003), organizations that wish to curtail turnover of its new workers should pay attention particularly to recruitment and selection, induction and job training issues.

- (a) Recruitment and Selection exercises should include selection in order to determine the appropriateness and suitability of candidates for the job, especially where practical skills are required. Chartered Institute of Personnel and development (2002) contends that advertisements of vacancies should give an accurate picture of the jobs, terms, conditions, starting pay and future prospects. In situations where organizations feel forced to hire less than the ideal due to high labour turnover, ACAS (2003) advises that every effort should be made by organizations to maintain standards for the new recruits. This will enhance quality output and rescue extra cost of training and supervision. It also suggests that organizations should desist from setting unrealistic standards that are not necessary because qualified candidates may quickly become bored with the jobs than they had imagined.
- (b) Induction courses are very crucial to the new employees before they properly settle down and feel part of the organization (ACAS, 2003). The essence is to provide such new employees with a good deal of information that is quite apart from that which will come from training for the specific job.
- (c) Job training of a new employee naturally varies in length and complexity from one organization to another, even when the job is similar. Training may be on or off the job. Quite a number of organizations may make use off-the-job facilities, especially where the job is complex or cannot be taught satisfactorily on the job. According to ACAS (2003), a training scheme should ensure that the new starter is gradually introduced to each stage of the job and can do each task satisfactorily before moving onto the next.

### 2.7.2 Turnover of Long-Term Employees

Careful analysis is required where significant numbers of trained and experience workers are quitting from an organization. Special attention needs to be given issues such as those of organizational structure or management style before remedial action is taken (Chartered Institute of Personnel and Development (CIPD), 2002). As a first step according to CIPD (2002), it is necessary for an organization in this situation to examine rates of pay and earnings levels to ensure that they have not become out of line with those paid for comparable jobs in the industry. It is very crucial to maintain possible opportunities for career progression and steady improvements in earnings and skills of employees. It is view that Umar's (2006) where there is a declared policy of promotion within the organization, workers would see less need to seek career development or pay improvements elsewhere, provided the policy is seen to operate in an open and fair way.

According to ACAS (2000) an organization's management should be prepared to examine its practices especially when there are serious changes. This will help to identify the contributory factors in the loss of long-serving employees. ACAS (2003) put forward the following areas for consideration:

- (i) **Pay:** Are the Pay systems and methods fully understood and thought to be fair?
- (ii) **Job Evaluation:** Has the job evaluation system succeeded in removing the inconsistencies involved in the pay system? Is there any policy in the organization to prevent discrimination of age, ethnic, religion, among others?
- (iii) **Communication:** Do the employees feel they are kept in the picture about new orders, product developments, new equipment and management changes?

- (iv) **Management Skills:** Are managers and supervisors fully named? Are they competent to deal with the human and technical aspects of their jobs?
- (v) **Discipline:** Is there a proper disciplinary procedure made available to every employee? Is there adequate training given to managers and supervisors as regards to its usage? Is there support from senior managers for the application of disciplinary procedures?
- (vi) **Appraisal:** Is there opportunity given to employees to discuss work appraisal or its progress with supervisors and managers?
- (vii) **Planning:** Are workers kept waiting or move from job to job?
- (viii) **Maintenance:** Is there a planned programme of maintenance or do frequent breakdown affect efficiency earnings and tempers?
- (ix) **Procedures:** Are workers' grievances and suggestions being properly addressed?
- (x) **Working conditions:** Are conditions of work generally acceptable? How tidy and clean is the working area?
- (xi) **Working Hours:** does there exist any recognize able patterns of working time? Does the organization offer flexible working hours, part time, temporary or job sharing schedules, especially to satisfy the needs of the working mothers?

## **2.8 Review of Previous Studies on Labour Turnover**

Several researches have been conducted on different aspects of labour turnover in different organizational settings. This section is concerned with a review of such studies which relate to academic institutions of higher learning. Okpapi (1984) undertook a study on labour turnover in

Ahmadu Bello University, Zaria. He observed that labour turnover was disruptive to any educational institution particularly in the university system. His study was to identify the nature, degree and causes of the labour turnover particularly among the senior staff of Ahmadu Bello University and at the same time suggest remedial measures that could enhance worker's satisfaction, commitment and retention. In conducting the research, documentary sources, personal observation, as well as interview methods were used. The study revealed that labour turnover in Ahmadu Bello University was caused by three interacting factors. These are the socio-economic environment, the individual characteristics and the internal structural factors as they all relate to the conditions of service. The research further revealed that most of the labour turnover was employee motivated and that, the academic institutions of higher learning constituted the greatest competitors for such departing staff. The researcher however, recommended reduction in the rate of the establishment of new universities and other institutions of higher learning and the expansion of the existing universities as ways of curtailing the syndrome.

The above empirical study is similar to the one currently under investigation since it involved a focus on labour turnover on the same University. However major gap in Okpapi's work is that the selection of the sample size of the population was not scientific because the number of questionnaires distributed to respondents were not based on the contribution of their respective faculties/units. Similarly, Shettima (1991) conducted a study on labour turnover in Nigerian universities using as case study Abubakar Tafawa Balewa University for a period of five years (1980-1985). His research was necessitated by the rampant quitting of large number of personnel from universities to other private and public enterprises. It was found out that, there was mass exodus of personnel from the university to other private and public enterprises as a

result of better prospects, outside the university. Unattractive conditions of work and general insecurity arising from religious disturbances and the activities of secret cults on campus also contribute to this trend. The study also revealed that the separation rate was higher among the junior and intermediate staff cadre than the senior staff.

One major difference between the above research and the present study is the inclusion of the junior and intermediate staff in the population studied. However, the interview method has gone a long way in facilitating the process of communication which could have served as a serious barrier in achieving the desired objectives. Gadzama (1979) in the same vein undertook a study on labour turnover in Ahmadu Bello University from 1970 to 78. Poor condition of service was his main observation, concerning the incidence of labour turnover. It was found that, on the average, the labour turnover in the Ahmadu Bello University has been consistently bad when compared to new arrivals to the University.

In the study discussed above the questionnaire was supposed to have been administered to both present and former staff of the university. One major weakness of that study is the fact that the population of the subjects for the study was not indicated. The researcher equally admitted in his work that, he was only able to administer a limited number of questionnaires to the former staff around Zaria as a result of time constraint. The above study differs with the current research not only in terms of scope but also in terms of the population sampled.

In her contribution to the study of labour turnover in Nigerian universities Anthonia (2000) focused her attention on selected universities; Ahmadu Bello University, Bayero University, Kano, University of Benue and University of Ilorin. Her research was motivated by the unhealthy situation of Nigerian universities which have been quite unable to attract and retain

enough of their staff over the years. The outcome of the investigation reveals a state of poor finances in the universities. It was also a finding of the study that inadequacy of subventions has negative effects not only on both physical and academic growth of the universities but also on the stability and retention of staff. The study revealed that the in availability of funds dictate the quantity of teaching facilities and the condition of service of staff in terms of salary, welfare, promotion, personnel growth and development etc.

The relevance of the above study to the current one is that it deals with the subject of labour turnover in academic institutions of higher learning. But one major difference is the inclusion of senior non-academic staff in the population studied. There is also difference in terms of the methodology adopted.

## **2.9 Theoretical Framework**

This study is concerned with two broad theories. They are the internal theory of Labour turnover and the external theory of Labour turnover. Pigors and Myers (1983) and Pettman (1975) identified the characteristics of the individual workers as sources of dissatisfaction and also pointed out the influential factors which impinge on the performance, satisfaction and commitment of workers in an organization. While the internal factors include the pay system within the organization, participation among primary groups, communication and the amount of centralization, the external factors include the financial conditions within the organization and in the larger environment.



### **2.9.1 The Internal theory of labour turnover**

Internal theory (or structural factors) essentially refers to the personnel system put in place within an organization. That is the personnel policies and practices in an organization since these have direct influence not only on the attitude, performance and satisfaction of employees but also on the pattern of behavior and the direction of workers in an organization. In other words, an examination of the problem of labour turnover in the Nigerian university system should not just involve a focus on the individual characteristics of the workers alone, but it should also involve a careful study of the way that such are managed. However, the management of staff involves the articulation of clear cut policies which cover a whole range of the organization's personnel administration. Among the proponents of this theory include Cuming (1980) who identified that the best possible procedure for obtaining personnel is taking care of them in the best possible way so as to ensure their continued stay and participation in the organization. The researcher is of the view that where aspects of the function of the personnel are not properly handled that is in terms of their appropriateness or inappropriateness, adequacy or inadequacy, fairness or unfairness, effectiveness or ineffectiveness, internal disequilibrium is bound to occur. This may be characterized by workers' disenchantment with work and perhaps their eventual departure/quitting from such employment (Anthonia, 2000).

### **2.9.2 The external theory of labour turnover**

The existence, survival and growth of all human organizations are also dependent upon the external environment. Variables such as the human, material political, psychological and economic ones are involved here. Eventually these would effect the satisfaction or dissatisfaction, performance or non-performance, retention or separation and the stability or

instability of workers in an organization. For instance, the impact of a single major political decision on the attitude, morale, and commitment of workers in an organization can be better imagined.

For a proper understanding of the phenomenon of labour turnover among the academic staff of Nigerian universities, an appreciation of the dynamic interplay of human organizations with their socio-political environment is necessary. As far as this study is concerned, the factors worthy of consideration are finance, university autonomy and the socio-political climate. These involve whether or not finances are okay, the level and guarantee of academic freedom, the nature of the socio political and economic environment etc. All these will go a long way in deforming the satisfaction of workers and of course, their decisions either to stay or to quit the university employment. Koontz, et al (1983) contended that laws are passed as a result of social pressures and factors. These in a way affect the organizational environment in terms of workers attitude and morale, performance, satisfaction and commitment.

Nevertheless, the study of labour turnover in Nigerian universities involve not only an examination of the internal theory (or structural factors), but also a consideration of the external theory (or socio-political environment) which have direct relevance to the stability and retention of the academic staff. In other words, the framework which has guided the conduct of this research and the interpretation of the data gathered will be assessed the backdrop of the dynamic interplay of both the internal and external theories. In essence, the study adopts both the internal and external theories because the problem of labour turnover emanates from within and outside the university environment. Internally, there was the stagnation of promotion exercises in Ahmadu Bello University and this frustrated many academic staff compelling them to quit.

Externally, funding by the federal government to universities has been grossly inadequate. Poor funding was significantly experienced by Ahmadu Bello University during Mahdi's regime as Vice-Chancellor (Mahdi, 2002).

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter deals with the methodology adopted in conducting the study. It describes how data are gathered, analysed and interpreted. The choice of the methodology is guided by the objectives and the nature of the data required for the study. The section is divided into research design, population design and sampling technique, sources of data, method of data analysis and justification of the method used.

#### 3.2 Research Design

Research design specifies the methods and procedures for the collection, measurement and analysis of data relating to a given problem (Emory, 1970). In essence, it provides a procedural framework for the conduct of any given investigation. In other words, research design is the plan for a research project which may vary on the basis of the nature of the problem under investigation. Nwana (1981) perceived design to be a term used to describe a number of decisions which need to be taken regarding the collection of data before ever-the data are collected.

Survey research, under the general umbrella of descriptive method of research, was adopted for this study. One of the reasons behind selecting this method was due to its appropriateness enabling the researcher to find out the conditions or relationships that exist by collecting and analyzing data from only a few people or items considered to be representative of the entire group (Akuezuiolo, 1993).

### 3.3 Population of the study

The population of the study comprises of all the academic staff in Ahmadu Bello University, Zaria. By December 2009, the faculties and other institutes and centres and number of academic staff are as follows:

**Table 3.1 Number of Academic Staff in Ahmadu Bello University Zaria as at December 2009**

<b>Faculties/ Institutes and Centres</b>	<b>Number of Academic Staff</b>
Administration	123
Agriculture	117
Arts	116
Education	131
Engineering	171
Environment design	135
Law	45
Library staff	54
Human medicine	224
Pharmaceutical sciences	87
Science	252
Social Sciences	92
Veterinary medicine	102
Other Institutes and Centres	<u>233</u>
Grand total	<u>1,882</u>

(Source: Registry Department, A.B.U., Zaria: 2011)

### 3.4 Sample Size and sampling Technique

To draw the appropriate sample size, the study employed the Yamane (1967) sample size formula. Thus, the formula below was utilized to determine sample size:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = Sample Size

N = Population

e = Margin of error (0.05)

Source: Yamane (1967).

$$\text{Therefore, sample required is } = \frac{1882}{1 + 1882(0.05)^2} = 329.88 = 330$$

The sampling technique adopted is stratified sampling. The reason for adopting stratified sampling was as a result of differences in population size of academic staff in the respective faculties/other institutes and centres. That is to say, the number of questionnaires to be administered depends on the contribution of the respective faculties/other institutes and centres to the total population figure.

### **3.5 Sources of Data collection**

The study utilized both primary and secondary sources of data. The instruments used for the purpose of collecting the respective data are questionnaire, interview and documentation. Questionnaire was used because of the economy it offered in terms of time and effort and its ability to demand for data in a uniform manner from all respondents. Questionnaire is an efficient data collection method that avoids biases of the respondents, as demonstrated by

Dionco-Adetayo (2003). Interview was conducted to illicit complementary data and check up on specific areas where relevant data was not provided by the respondents to the questionnaire. Documentation was also used in order to provide room for obtaining data based on actual activities taking place within the selected organization.

### 3.6 Method of Data Analysis

Statistical techniques used for data analysis was the descriptive and inferential statistics types. Chi-square statistical tool was employed in testing the hypotheses. This is because it can actually capture and address impact and relationship of the data collected. Chi-Square statistics is frequently used in testing a hypothesis concerning the difference between a set of observed frequencies of a sample and the corresponding set of expected or theoretical frequencies.

The chi-square  $\chi^2$  will be computed on the results of cross tabulation between two arms of one question relating to a problem being investigated. That is to say the dependent and independent variables which form the hypothesis to be tested will be involved. The chi-square  $\chi^2$  statistic will be computed by using the following expression:

$$\chi^2 = \frac{(o_1 - e_1)^2}{e_1} + \frac{(o_2 - e_2)^2}{e_2} + \frac{(o_3 - e_3)^2}{e_3} + \dots + \dots + \dots + \sum_{j=1}^k \frac{(o_j - e_j)^2}{e_j} .$$

Where:

- $o_j$  = Observed frequency.
- $e_j$  = expected frequency.

Source: Walpole (1982)

Where:

- $\chi^2$  = Chi- Square
- $f_o$  = Observed Frequency

$f_e$  = Expected Frequency

However, for a larger contingency table the Expected Frequency is calculated thus:

$$f_e = \frac{[\text{Row total} \times \text{Column total}]}{\text{Grand total}}$$

The ninety-five percent (95%) confidence interval with 5% level of significance is adopted for the study. Where the calculated value is greater than the tabulated or critical value the study rejected the null hypothesis implying that it only accepted the calculated value if it was less than critical value. The test was conducted at an  $\alpha = 0.05$ , level of significance. The chi-square could be applied to qualitative data to test for perceptions on impact and to test for perception of relationship or dependence between/or among variables which are designed or drawn from qualitative responses.

### **3.7 Justification of methods and technique used**

The following are the reasons for the choice of methods and techniques adopted for the study:

- i) The study preferred chi-square to other methods because it can capture and address impact and relationship of the qualitative data collected from the questionnaire for which the hypotheses in the study were formulated.
- ii) Chi-square was employed to test the significance of two nominal variables and establish whether the variables are independent of each other.
- iii) Adetayo (2003) holds the view that when the dependent variable of a study is a dichotomous decision (such as yes or no) or frequency count, then statistics of choice is chi-square ( $\chi^2$ ) test for independence. However, the choice of chi-square statistical method is based on the nominal nature of the variables of the hypotheses in the study.



## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS AND INTERPRETATION

#### 4.1 Introduction

This chapter deals with the analysis and interpretation of the data collected from the questionnaires administered on the respondents. The questionnaire was designed to gather personal data of respondents. These data were meant to guide the researcher in drawing appropriate and meaningful conclusions on the perception of Ahmadu Bello University academic staff on the effect of labour turnover on productivity. The study utilized the survey research method under general descriptive research method to analyze the primary data. This enabled the study to get answers to some useful and related questions and enabled some inferences regarding the relationships between the variables of study and the several implications drawable from the interpretations made in the chapter. Areas covered by this section include: gender, marital status, age, educational qualification, years of working experience and the faculty/centre or unit of the academic staff/respondents. The second part of the questionnaire that is Section B of Appendix 2, addressed the major issues under the study as well as the information needed for answers to the research questions and the testing of the three (3) hypotheses.

#### 4.2 Administration of Questionnaire and Analysis of Responses

Copies of the questionnaire were administered to the sample respondents in accordance with the procedure presented under the methodology section. The table below summarizes the Questionnaire responses obtained from the total number administered for the study.

**Table 4.1 : Summary of Administered Questionnaire**

	<b>Total</b>	<b>Frequency of Returned</b>	<b>Percentage</b>	<b>Not Returned</b>	<b>Percentage</b>
Faculties	250	204	81.6%	46	18.4%
Institutes& Centers	80	51	63.75%	29	36.25%
<b>Total</b>	<b>330</b>	<b>255</b>	<b>72.68 %</b>	<b>75</b>	<b>22.72%</b>

**Source:** Questionnaire administered, 2011

From table 4.1, a total of 330 copies of questionnaires were sent out to the faculties and centers/Institutes. A total of 250 copies of questionnaires were dispatched to the faculties under the study, leaving 80 copies for the centers/institutes.

From table 4.1, 204 copies of questionnaires out of 250 administered to faculties, representing 81.6% were returned, while the remaining 46 copies representing 18.4% were not returned. Also 51 copies of questionnaires out of the 80 administered to Centers/institutes, representing 63.75% were returned, while the remaining 29 copies of questionnaires representing 36.25% were unreturned. This implies that on the average 72.68 % of the copies of questionnaires that were administered and returned were used for analyzing the data and for the interpretation and inferences that would be made. This high rate of response could be as a result of the fact that majority of the respondents were picked at random by the researcher and/or some of the assistants at the various faculty offices.

### 4.3 Presentation of Data

Table 4.2 presents the demographic statistics of the respondents where the following variable receives attention: gender, marital status, age, educational qualification, and years of working experience and faculty/centre or unit of the respondents. Descriptive statistics, in the form of frequencies and percentages are subsequently presented for each of the above mentioned variables.

**Table 4.2 Responses on Demographic features of Academic Staff**

ITEM	FREQUENCY	PERCENTAGE (%)
<b>Gender:</b>		
Male	193	75.7
Female	62	24.3
<b>Marital Status</b>		
Single	24	9.4
Married	231	90.6
<b>Age (in years)</b>		
1-30	22	8.6
31-40	103	40.4
41-50	100	39.2
51-60	27	10.6
61 and above years	3	1.2
<b>Educational Qualification</b>		
B.Sc/equivalent	34	13.3
M.Sc/equivalent	120	47.1
Ph.D	76	29.8
Professor	25	9.8
<b>Years of Working Experience</b>		
0-10 years	89	34.9
11-20 years	96	38.0
21-30 years	55	21.6
31 years and above	15	5.5

**Source:** Questionnaire administered 2011.

Table 4.2 above is partly a representation of the gender distribution of the selected sample. The total responses are 255, male respondents constituted 75.7% and females were 24.3%. By implication, male respondents are three times more than the number of female respondents that

participated in the study. The need to separate the males from the female respondents is in line with the study conducted on the cultural values in Northern Nigeria (Umar, 2006) whereby males are more likely and opportuned to acquire Western education at higher levels than the it female counterparts. The aspect on marital status, is such that married and single respondents constituted 90.6% and 9.4% respectively. The high number of male respondents could be due to the fact that most University lecturers reached age of adolescent. The tendency of getting married is very obvious for adults than the youths.

Also, under the sub-item “Age” it was observed that respondents within the age range of 31 to 40 years old constitutes the highest, 40.4%. This is followed by those within the age bracket of 41 to 50 years (as 39.2%). Those within the age bracket of 51 to 60 years constitute 10.6%. Respondents whose age ranged between 1-30 years accounted for 8.6%, while those who are 60 years and above constitute the minority with 1.2%. The pyramidal age structure from 31 years to above 61 years showed negative relationship between turnover and age (price and Mueller, 1986). With regards to educational status, table 4.2 shows that respondents with a second degree (M.Sc. or equivalent) represent up to 47.1%, followed by Ph.D holders with 29.8%, while those with B.Sc/equivalent constituted 13.3%. Furthermore 9.8% of the respondents were professors. Price and Mueller (1986) queried that there is positive correlation between educational status and labour turnover. Positively associated with turnover is an employee’s level the amount of education, because more educated employees quit more often (Wai and Robinson, 1998). Another possible reason for labour turnover could be due to the greater opportunity and chances of appointment that are associated with higher educational qualification. In respect of working experience 34.9% are within the range of 1-10 years old. Working experience between 11-20 years constituted the greatest number with 38% of the total respondents. While 21.6% of the

respondents are within the years of experience of 21-30 years, the least response was 5.5% from respondents who are between 31 years and above. The foregoing index could be as result of the Nigerian civil service rule of maximum of 35 years in service which made it compulsory for workers to retire after putting in a service period of 35 years.

**Table4.3: Responses on Labour Turnover**

	Faculties/centers/institutes	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	VET. ME	14	5.5	5.5	5.5
	ADMIN	18	7.1	7.1	12.5
	AGRIC.	15	5.9	5.9	18.4
	ARTS	17	6.7	6.7	25.1
	EDUC	19	7.5	7.5	32.5
	ENGINEER	25	9.8	9.8	42.4
	ENV. DES	20	7.8	7.8	50.2
	HUMAN MED.	22	8.6	8.6	58.8
	LAW	7	2.7	2.7	61.6
	LIBRARY	7	2.7	2.7	64.3
	OTHER INSTS. & CENTERS	30	11.8	11.8	76.1
	PHARM. S	11	4.3	4.3	80.4
	SCIENCE	30	11.8	11.8	92.2
	SOCIAL S	20	7.8	7.8	100.0
	Total	255	100.0	100.0	

Source: Questionnaire administered 2011.

The table above represents the summary of responses based on faculties/centers/units in Ahmadu Bello University, Zaria. The total number of the responses was 255. The result indicated that, 14 respondents (5.5%) were from veterinary medicine while the faculty of administration had 18 respondents (7.1%) and Faculty of Agriculture with 15 (5.9%). Respondents from other Faculties include: Arts (17(6.7), Education 19(7.5), Engineering 25(9.8), Environmental Design 20(7.8%), Human Medicine 22 (8.6) and Law 7(2.7%). Others include Library Staff 7(2.7). Other institutes are Centers 30(11.8%), Pharmaceutical Sciences 11 (4.3%), Science 30 (11.8%) and Social Sciences 20(7.8%). It could be observed that Faculty of Science and other Institutes and Centers ranked first with the highest number of respondents of 30 (11.8%) each. They are in the majority due to the number of academic programmes that are done in the faculty. Overall Law and Library Staff were the least with 7 (2.7%) respondents each.

**Table 4.4: Responses on Factors that Determine Labour Turnover**

<b>Which of the following factors do you consider to be determinant of labor turnover?</b>			
	<b>Responses</b>	<b>Frequency</b>	<b>Percent</b>
	Remuneration	184	72.2
	Promotion	60	23.5
	Medical Care/Facilities	4	1.6
	Recreational facilities	3	1.2
	Housing Loan	2	.8
	Teaching Facilities	2	.8
	Total	255	100.0

**Source:** Questionnaire administered 2011.

The table above shows the various factors that determine labour turnover based on the perception of the respondents. From the table it can be seen that remuneration had 184 respondents constituting 72.2%. This is followed by promotion with 60 (23.5%). Housing loan and teaching facilities were considered as least factors that determine labour turnover, with 2 (0.8%) responded. The distribution implied that majority of the respondents were in favour of better remuneration. The implication of this finding is that majority of the respondents are of the view that academic staff of the university consider remuneration as very vital in their decision to remain in Ahmadu Bello University. If the remuneration is poor and not attractive the implication is that it leads to poor standard of living due to weak purchasing power and this subsequently leads to turn over. This has adverse effects not only on the quality and standard of education but also on the overall training and capacity building and labour turnover in the university. This finding contrasts sharply with that of Gomeg-Meija and Balkin (1992) who found out that satisfaction with salary and pay are not strong factors against labour turnover. Their finding might have been due to their omission of other forms of compensation such as fringe benefits and incentives pay (Heinemann, 1995). This current study has taken this issue into consideration.

Promotion is ranked second in terms of the variables that determine with 60 (23.5%) responses. Respondents perceive that satisfaction with promotion and perceived opportunities for promotion can affect the labour turnover in the university either positively or negatively. The feeling by respondents that promotion should be certain or an employee's right provided all its conditions are satisfied is adequate enough to assist a staff to remain on the job whereas any negative perception about this can have a tendency to make the staff to look for similar organizations or other jobs that provide opportunities for growth. This finding is consistent with

that of Carson et al (1993) that actual and regular promotion could predict labour turnover. Another determining factor of labour turnover is medical care/facilities, with 4(1.6%) respondents. Availability of recreational facilities and housing loan accounted for 3 (1.2%) and 2 (0.8%) respondents respectively. The presence of these factors motivates employees in the work environment and reduces incidence of withdrawal from an organization. This finding is also consistent with that of Mukhtar (2006) who argue that poor motivation or absence of self-esteem are factors that correlate with labour turnover in an organization. On the issue of teaching facilities there were 2 respondents representing 0.8% of the entire determining factors of labour turnover.

**Table 4.5 Responses on Factors that have More Significance on Labour Turnover**

	<b>Responses</b>	<b>Frequency</b>	<b>Percent</b>
	Teaching Facilities	14	5.5
	Remuneration	108	42.4
	Medical Care/Facilities	30	11.8
	Recreational facilities	6	2.4
	Housing Loan	4	1.6
	Promotion	87	34.1
	Training & Development	6	2.4
	Total	255	100.0

**Source:** Questionnaire administered, 2011.

Table 4.5 above represents the relevance of labour turnover factors on the performance of academic staff. In other words, the table presents how significant each factor is in determining the labour turnover of academic staff. Based on the table, respondents' perception indicated that



remuneration has the highest score of 108 respondents representing 42.4% while promotion as a factor ranked second attracting 87 respondents representing 34.1%. These two are followed by medical care and teaching facilities with 30 and 14 respondents each, representing 11.8% and 5.5% respectively. Recreational facilities; training and development had 6 respondents (2.4%) each. Housing loan was considered as the least significant factor labour turnover that encourages and leads to affecting the performance of academic staff. This is in line with the results of Anthonia (2000) that indicated that condition of service in terms of salary, promotion; personnel growth and development play a significant role in determining not only labour turnover but overall staff performance.

**Table 4.6: Perception of Respondents on how Contributions from Foreign/indigenous Sources influence labour turn over matters.**

	<b>Responses</b>	<b>Frequency</b>	<b>Percent</b>
	Strongly Agree	135	52.9
	Agree	106	41.6
	Undecided	12	4.7
	Disagree	1	.4
	Strongly Disagree	1	.4
	Total	255	100.0

**Source:** Questionnaire administered 2011.

The table above represents responses on the relevance of contributions received from foreign/indigenous sources to labour turnover matters. A total number respondents of 241

representing 94.5% agreed that, contributions received from internal and external sources such as McArthur foundations and Education Trust Fund have a relevant bearing on labour turnover. This concurs with the findings of Mukhtar (2004) that contribution within and outside the University impact on the labour turnover of academic staff. However, 2 respondents representing 8% disagree while 12 (4.7%) maintained neutral position as undecided. The implication of these findings is that quite a number of times foreign and outside contributions have been found to play a very prominent role in assisting university staff to attract one form of scholarship or the other. This has helped in providing the relevant support needed for academic development and capacity building in the university especially where funding the university has become very scarce and acute. With these foreign and external interventions, a lot of academic staff that would otherwise have left the services of the university have been supported to conduct their various studies with funding from such grants.

**Table 4.7: Responses on the Impact of Socio-Political Instability on Labour Turnover**

	<b>Responses</b>	<b>Frequency</b>	<b>Percent</b>
	Strongly Agree	128	50.2
	Agree	115	45.1
	Undecided	10	3.9
	Disagree	1	.4
	Strongly Disagree	1	.4
	Total	255	100.0

**Source:** Questionnaire administered, 2011.

From the table above 243 respondents representing 95.3% agreed that political and social instability contributed significantly to labor turnover of academic staff in Ahmadu Bello University. Majority of the respondents believed that political instability and insecurity have the tendency to make academic staff to opt out for places where the atmosphere is conducive for learning and research. When asked for clarification, a number of respondents cited the example of the military era when a number of the academic staff had to leave the university and the country in search of better and greener pastures to work, leaving domestic Nigerian universities with high incidence of labour turnover. Meanwhile, 2 respondents representing 7% disagree with the view that the political and social instability factor leads to labor turnover of academic staff. 10 respondents (3.9%) were undecided as to what their opinion is on the mater. This finding is consistent with that of pigour (1983) and Pettman (1975) that the existence, survival and growth of all human organizations are dependent upon external environmental inputs. The impact of a single political decision on the attitude, morale and commitment of workers in an organization is unimaginable. Koontz et al (1983) contended that, laws are passed as a result of social-pressures and problems and these in a way affect the organizational environment in terms of workers attitude, morale, performance, job satisfaction and commitment. Mukhtar’s (2004) findings seemed to uphold a similar view that, political and social stability could contribute (significantly) in the retention or otherwise of the workforce in the academic environment.

**Table 4.8- Responses on the effect of work-overload on labor turnover of academic staff.**

	<b>Responses</b>	Frequency	Percent
	Strongly Agree	9	3.5
	Agree	51	20.0

	Undecided	7	2.7
	Disagree	149	58.4
	Strongly Disagree	39	15.3
	Total	255	100.0

Source: Questionnaire administered, 2011.

From the table above 60 respondents representing 23.5% are of the view that, work-overload helps significantly in causing academic staff to disengage from University employment leading to high labour turnover. On the other hand, 188 respondents, representing 73.7% disagree with this view. However, seven respondents representing 2.7% remained undecided. This finding confirms the earlier work of Katz and Kahn (1978) which established that role overload and role conflict cause labour turnover in an organization. According to them role overload is a situation where an individual employee is carrying out many roles or tasks to the extent that he or she develops disaffection for the jobs or roles.

**Table 4.9- Distribution of Responses of Academic Staff on Quitting Due to under Funding**

		Frequency	Percent
	Strongly Agree	116	45.5
	Agree	129	50.6
	Undecided	5	2.0
	Disagree	2	.8
	Strongly Disagree	3	1.2
	Total	255	100.0

Source: Questionnaire administered, 2011.

From the table above 245 respondents, representing 96.1%, are of the opinion that under funding plays a very significant role that leads to academic staff quitting from the University service. Also, 5 respondents representing 2% are undecided while 5 other respondents, representing 2%, disagreed with this position. This last group argues that under-funding does not play any significant role in terms of academic staff who quit the service of the University. However the majority view above is in tune with Anthonia's (2000) findings that underfunding has negative repercussions on the smooth operation of a university. These negative consequences according to her include labour turnover and inability to provide the basic teaching facilities & equipment. Consequently, this can cause employees to leave organizations. Voluntary turnover or a quit reflects an employee's decision to leave an organization while, involuntary turnover or a discharge reflects an employer's decision to terminate the employment relationship

**Table 4.10: Responses to the claim that Job Opportunities is a factor for Labour Turnover.**

	<b>Responses</b>	Frequency	Percent
	Strongly Agree	126	49.4
	Agree	105	41.2
	Undecided	9	3.5
	Disagree	13	5.1
	Strongly Disagree	2	.8
	Total	255	100.0

**Source:** Questionnaire administered, 2011.

From the table above, 231 respondents, representing 90.6%, shared the view that job opportunities outside the University system contribute significantly to academic staff quitting the services of the University. However, 15 respondents, representing 5.9%, disagreed that job opportunities could make academic staff to leave their jobs. They contend that those who take to the teaching profession do so by choice and so long as they chose to make their carrier in it, other job opportunities could hardly distract them from it. The table also shows that 9 respondents, representing 3.5%, were undecided. The implication of this finding is that it is very crucial to maintain possible opportunities for career progression and steady improvements in earnings and skills. This is consistent with Shettima’s (1991) work which established that, better prospects outside the University attract academic staff in search of work and other benefits.

**Table 4.11: Academic Staff performance during labor turnover**

	<b>Responses</b>	Frequency	Percent	Valid Percent	Cumulative Percent
	Excellent	44	17.3	17.3	17.3
	Very High	87	34.1	34.1	51.4
	Neutral	44	17.3	17.3	68.6
	Poor	37	14.5	14.5	83.1
	Very Poor	43	16.9	16.9	100.0
	Total	255	100.0	100.0	

**Source:** Questionnaire administered, 2011.

One important issue which is very relevant to this study is the nature of staff performance during labour turnover. The table above presents responses from the respondents on what they perceived as staff performance during or in the process labour turnover. From the table above it can be seen that 44 respondents, representing 17.3%, perceived academic staff performance during the period as excellent. 87 respondents representing 34.1% perceived the performance of staff to be very high despite the prospects of labour turnover. Also, 44 respondents representing 17.3%, remained regarding what they considered as the Nevel neutral of staff performance when they are in the process of quitting the system. Yet 37 respondents representing 14.5% considered staff performance to be poor in that period. Similarly, 43 respondents representing 16.9% perceived staff performance during the process of turnover to be very poor. It can be deduced that more than 51.4% of the respondents are of the view that the performance of academic staff remained very high while 31.4% perceived it to be poor. The conclusion we can draw from this is that despite the seeming good performance of staff during labour turn over, it is also evident that the performance of quite a number of staff is affected by the prospects of labour turnover. This finding is consistent with studies cited earlier that attempt to explain the various effects of labour turnover on academics, research and teaching in the university.

#### **4.4 Hypotheses Testing:**

The hypotheses formulated for the study were tested, thus:

##### **Hypothesis I**

This hypothesis states that:-

$H_{01}$ : Labour Turnover has no significant impact on the performance of academic Staff of Ahmadu Bello University, Zaria.

In order to test this hypothesis, we utilized the data on tables 4.4 and 4.5 and cross tabulated the two to generate the chi-square output which was used for our hypothesis testing. (See the attached appendix). The following table (4.12) summarizes the SPSS output for the hypothesis:

**Table 4.12 Results from the Test of Hypothesis 1**

<b>Chi-Square Tests</b>			
Statistic	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.540	24	.326
Likelihood Ratio	29.499	24	.202
Linear-by-Linear Association	.309	1	.578
N of Valid Cases	255		

Source: Questionnaire administered, 2011

From the table, the calculated value of chi-square is 26.54 at 24 degrees of freedom. However checking the critical value at 5% level of significance and 24 degrees of freedom the value is 36.415. This means that the critical value is greater than the computed value. Therefore we have



no sufficient evidence to reject the null hypothesis. Alternatively, the P-value of 0.326 is greater than the level of significance of 0.05, which leads to the same conclusion. The likelihood ratio of 29.49 is also not significant at a P-value of 0.202 and the linear-by-linear ratio of 0.309 is also not significant at a P-value of 0.578, hence we accept the null hypothesis. This implies that Labour Turnover has not made significant impact on the performance of academic Staff of ABU Zaria. Labour turnover assumed to have some level of impact on the performance of academic staff but such cannot be said to be very significant as to impact significantly on the performance of the generality of academic staff. The utility of this finding could be observed very clearly when we critically examine table 4.11 as illustrated earlier in the analysis. It also implies that to really assess the performance of staff we need to go beyond just labour turnover and consider other equally vital factors to the performance. It is only when all the factors are jointly and collectively examined that we can conveniently come out with overall impact.

### **Hypothesis II**

This hypothesis states that:-

H<sub>02</sub>: Labour Turnover Factors are not perceived as significant by academic staff of Ahmadu Bello University, Zaria

In order to test this hypothesis, we utilized the data on table 4.4 and table 4.11 and cross tabulated the two to generate the chi-square output which is needed for our hypothesis testing. (See appendix attached). The following table summarizes the SPSS output for this hypothesis:

**Table 4.13 Results from the Test of Hypothesis Two**

Chi-Square Tests			
Statistic	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	333.553 <sup>a</sup>	30	.000
Likelihood Ratio	162.445	30	.000
Linear-by-Linear Association	2.036	1	.154
N of Valid Cases	255		

**Source: Questionnaire administered, 2011**

The calculated value of chi-square is 333.55 with 30 degrees of freedom. However checking the critical value at 5% level of significance and 30 degrees of freedom the value is 43.77. This means that the calculated or computed value is greater than the critical value. Therefore we reject the null hypothesis, thus, accepting the alternate. Alternatively, the P-value of 0.000 is less than the level of significance of 0.05, which leads to the same conclusion. The likelihood ratio of 162.45 is also significant at a P-value of 0.000. However; the linear-by-linear ratio of 2.036 is also not significant at a P-value of 0.578. This implies that Labour Turnover Factors are perceived significant by academic staff of Ahmadu Bello University, Zaria. It could be deduced that labour turnover factors received different level of perceptions from the findings and the perceptions are not the same due to their varying levels as demonstrated in tables 4.4 and 4.5. This finding can be seen very clearly when we critically examine table 4.5 as described earlier in the analysis. It also implies that labour turnover factors are perceived as significant depending on the factors that are considered by the respondents. Some respondents perceived remuneration and some perceived promotion. Yet many other respondents perceived other equally vital turnover factors. This implies that each of the factors can be very useful in the determination of labour

turnover and for meaningful analysis. A factor perceived by a section of the respondents to be very vital may be considered as less vital by other sections of the respondents, though on a general note each of the factors can be very useful.

**Hypothesis III**

This hypothesis states that:-

H<sub>03</sub>: Academic staff do not consider external support funds as being relevant in labour turnover in Ahmadu Bello University, Zaria.

In order to test this hypothesis, we utilized the data on table 4.6 and table 4.4 and cross tabulated the two to generate the chi-square output which is needed for our hypothesis’ testing. (See appendix attached). The following table summarizes the SPSS output for this hypothesis

**Table 4.14 Hypothesis three test Results**

<b>Chi-Square Tests</b>			
Statistic	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	28.629 <sup>a</sup>	24	.234
Likelihood Ratio	18.169	24	.795
Linear-by-Linear Association	1.167	1	.280
N of Valid Cases	255		

Source: Questionnaire administered, 2011

Table 4.14 depicts the output of the chi-square values. The chi-square was calculated to be 28.63 at 24 degrees of freedom. However the critical value at 5% level of significance and 30 degrees of freedom is 36.415. This means that the calculated or computed value is less than the critical value. Therefore we do not have sufficient evidence to reject the null hypothesis. Alternatively, the P-value of 0.234 is greater than the level of significance of 0.05, which leads to the same conclusion. The likelihood ratio of 18.63 is also not significant at a P-value of 0.79. However, the linear-by-linear ratio of 1.167 is also not significant at a P-value of 0.280. Academic staff members do not consider external support funds relevant to labour turnover in ABU Zaria. Despite the fact that external support in the form of funding has been found to exert some impact on labour turn over, on an overall basis it cannot be said to be of much influence or impact on labour turnover. As the earlier finding has shown there could be other vital factors that could exert major impact on the turnover. This finding makes a lot of sense considering the fact that even when external funding is attracted by the university, it does not go round to every researcher or staff in training. This may explain why a lot of staff are usually left out and cannot benefit from it. Personal interview conducted revealed that MacArthur and Carnegie grants to the university for the advancement of teaching and research was accessible to only a very few, due to the stringent conditions attached and in some cases other extraneous factors.

#### **4.5 Discussion of the findings**

Responses on factors that determine labour turnover show that remuneration is a major consideration by with the view that academic staff of the university who see strong purchasing power (remuneration) as a pivot concern in their decision to stay in service. Thus, with regards to responses on factors that have more significance on labour turnover, respondents' perception indicated that remunerations has the highest score. It was also revealed that contributions

received from internal and external sources, such as those by McArthur foundation and Education Trust Fund, impact labour turnover positively. Majority of the respondents believed that socio-political instability and insecurity have the tendency to make academic staff members to opt out of their places of work, as a necessary option to such places where the atmosphere is conducive for learning and research. This is not surprising since peace and stability is the bedrock upon which academic activities could be conducted smoothly.

However, responses on work-overload as a factor that affects labour turnover of academic staff show that majority of the respondents do not share this view. That is, they disagree with this opinion. Also in terms under-funding as a factor in labour turnover of academics the research findings reveal that a greater proportion of the respondent who constituted the majority argued that under-funding plays a very significant role in compelling academic staff to quit the services of the university. In respect of job opportunities elsewhere as a factor for labour turnover a great number of respondents, who are in the majority, are of the opinion that, job opportunity (ies) outside the university system contribute significantly to the decision by academic staff members to leave their employment in the university.

As has been demonstrated the performance of academic staff during labour turnover processes was impressive although a minority of the staff have their performance affected during the transition. By checking the critical value at 5% level of significance and 24 degree of freedom, the study tested hypothesis one ( $H_{01}$ ) found out that labour turnover has not made significant impact on the performance of academic staff of Ahmadu Bello University.  $H_{01}$  therefore is acceptable as a major step in the analysis of labour turnover. Based on checking the critical value at 5% level of significance and 30 degree of freedom, the second hypothesis is rejected.

This implies that labour turnover factors are perceived as significant by academic staff of Ahmadu Bello University, Zaria.

The research also found out that, academic staff do not consider external support funds relevant on labour turnover in A.B.U Zaria. Despite external funding attracted by the university, it is not enough to cover the research needs of all staff including staff in training. In view of this the third null hypothesis ( $H_{03}$ ) is accepted as valid.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Summary

This research is an empirical study conducted to assess the impact of labour turnover on the performance of academic staff in Ahmadu Bello University, Zaria. The study was motivated by the huge amount of money annually budgeted to fund Nigerian universities, with apparently no significant impact on the labour turnover crises. Although, expatriate academics are invited and paid on contractual agreement terms in order to balance the equation of lecturer-students ratio, yet no remarkable achievement has been recorded. While more lecturers are employed from within the country the number of those quitting the system by way of labour turnover outweighs the number of influx. Similarly while internal and external sources of support funds are generated to complement government efforts, the impact of such on the rate of labour turnover is still discouraging. However, the research attempts to address the above problems by focusing on the following study objectives:

The main objective of this study is to assess the impact of labour turnover on the performance of academic staff in Ahmadu Bello University. Descriptive/survey research method was adopted for the study. Questionnaire and documentary sources were used as instruments of collecting data for the study. Chi-square technique was used in testing the hypotheses from which the result in chapter four was arrived at. One of the key findings of this research is the fact that respondents differ in their perception as to the factors that have more significance on labour turnover and how contributions from foreign and domestic sources influence labour turnover matters and what impact socio-political instability has on labour turnover. The findings of the study show that

remuneration plays a significant role in determining the decision by academic staff to stay in the services of the university or not. The following conclusion so predicated on the foregoing.

## **5.2 Conclusions**

Based on the major findings of this research, the study concludes that there exists significant positive relationship between remuneration and academic staff intention to stay in the service of the University. Secondly, the study revealed that under funding cripples the university's effort to improve the condition of service of its academic staff. This has an adverse effect causing staff to quit their employment to other jobs outside the university system. Thirdly, there exists a positive significant relationship between perceived labour turnover factors and academic staff performance. Fourthly, it was found out that majority respondents do not share the view that work-overload affect labour turnover of academic staff. There is thus a negative significant relationship between job enrichment and labour turnover crises.

Universities invest a lot on their employees in terms of induction and training, developing, maintaining and retaining them in their universities. University administrators at all costs must minimize employees' turnover. Although, there is no standard framework for measuring the employees' turnover process as whole, a wide range of factors have been found useful in interpreting this occurrence. Therefore, there is need to develop a fuller understanding of the incidence of employee turnover, especially, in terms of what determines employee turnover, its effects and the strategies that managers can put in place to minimize turnover. With globalization which is heightening competition, universities must continue to develop services which are based on strategies created by employees. These employees are extremely crucial to the universities since their value is essentially intangible and not easily replicated. Therefore, University administrators must recognize that their employees are major contributors to the efficient



achievement of the university's success. University administrators should also control their employee turnover for the benefit of the administrators' or organizations.

The literature we reviewed on employee turnover is divided into three groupings: sources of employee turnover, effects of turnover and the strategies to minimize turnover. Employees are the backbone of any university's success and therefore, they need to be motivated and maintained in these universities at all cost. This will aid such universities to be globally competitive in terms of providing quality graduates and services to the general society. In the long-run, the returns on investments on the employees would be achieved. The University Management should encourage job redesign-task autonomy, task significance and task identity, open book management and the empowerment of employees. Recruitment and selection must be done scientifically with the objective of retaining employees. University management should address the trend and also examine the sources of employee turnover and recommend the best approach to fill the gap of the source, so that they can be in a position to retain employees in their Universities to enhance their competitiveness in this world of globalization. University administrators must understand that University employees should be treated as the most liquid assets of the organization which could make the university to withstand the wave of globalization and its attendant competition. Since pay and pay-related variables have a great effect on employee turnover, a University should remunerate employees adequately. A University management should pay employees based on their performance and in addition it should give necessary incentives to motivate lecturers. Hence, if these measures are put in place they would minimize employee turnover in our universities.

### **5.3 Recommendations**

In line with the research findings and the conclusion reached, the study recommends the following:

- i. Adequate funding should be made available. This will enhance learning, research and retention of academic staff. Adequate funding should strongly take care of an improved salary structure for academic staff and such other conditions of service that are needed should be put in place. If all these are put in place the tendency by academic staff to disengage from the services of the University for other better job opportunities, will be markedly checked.
- ii. The university management should judiciously utilize support funds from the Education Trust Fund and other external agencies such as McArthur foundation and be ready to retire or account for income and expenditure when required. This could assist government's effort toward providing conducive atmosphere for effective learning.
- iii. There should be a regular and timely promotion of qualified academic staff in the University. All hitches or constrains related to promotion exercises should be addressed.
- iv. Work overload should be curtailed in order to improve quality standard of education. This will create conducive academic atmosphere for learning.

### **5.4 Suggestions for Further Research**

The following are suggestions for further studies on labour turnover related issues in tertiary institutions:

- i. Future researches in the area should be conducted to correlate labour turnover condition to students' performance in terms of the quality of degrees that are awarded.
- ii. Further study could also be on a comparative study of the impact of labour turnover on the performance of academic staff among selected universities, which should encompass both public and private universities.

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## Appendix A: Questionnaire

Department of Business Administration,  
Faculty of Administration,  
Ahmadu Bello University,  
Zaria.

16<sup>th</sup> June, 2011.

Dear Respondent,

I am a Postgraduate student pursuing M.Sc. Business Administration in the above mentioned department. I am undertaking a research on: *“impact of labour turnover on the performance of academic staff in Ahmadu Bello University, Zaria.”*

The research is in partial fulfillment of the requirement for the award of Master of Science in Business Administration in Ahmadu Bello University, Zaria. The study considers you strategic for the information needed. Please, complete the attached questionnaire and be as frank as possible. All Information provided would be treated with strict confidentiality and your name and/or identity will never be revealed.

Thank you very much in anticipation for your usual cooperation.

ISMA'IL, A. Y.

M.Sc./Admin/57474/05-06.

**SECTION A: BIO-DATA**

1. Indicate your sex
  - (a) Male ( )
  - (b) Female ( )
2. Indicate your marital status
  - (a) Single ( )
  - (b) Married ( )
3. Indicate the age group to which you belong
  - (a) 0 – 30 years ( )
  - (b) 31- 40 years ( )
  - (c) 41- 50 years ( )
  - (d) 51 – 60 years ( )
  - (e) 61 and above ( )
4. Indicate the highest educational qualification you have attained.
  - (a) B.Sc./equivalent ( )
  - (b) M.Sc./equivalent ( )
  - (c) Ph.D. ( )
  - (e) Professor ( )
5. Indicate your years of working experience.
  - (a) 0 – 10 years ( )
  - (b) 11 – 20 years ( )
  - (c) 21 – 30 years ( )
  - (d) 31 years and above ( )
6. Faculty/Centre/Unit:.....

.....  
.....

**SECTION B: DATA ON LABOUR TURNOVER**

1. Which of the following factors do you consider to be determinant of labour turnover?

- a) Remuneration ( )
- b) Teaching facilities ( )
- c) Medical care/facilities ( )
- d) Recreational facilities ( )
- e) Housing loan ( )
- f) Promotion ( )
- g) Training and development ( )
- h) Opportunities for seminars, conferences and workshops ( )

2. Which of the following labour turnover factors do you consider to have more significance on academic staff performance?

- a) Remuneration ( )
- b) Teaching facilities ( )
- c) Medical care/facilities ( )
- d) Recreational facilities ( )
- e) Housing loan ( )
- f) Promotion ( )
- g) Training and development ( )
- h) Opportunities for seminars, conferences and workshops ( )

3. Ahmadu Bello University receives contributions from foreign/indigenous sources, such as McArthur foundation and Education Trust Fund. These are considered to be relevant to labour turnover matters.

- a) Strongly agree ( )
- b) Agree ( )
- c) Undecided ( )
- d) Disagree ( )
- e) Strongly disagree. ( )

4. Political and social instability contribute significantly to labour turnover of academic staff in Ahmadu Bello University.

- a) Strongly agree ( )
- b) Agree ( )
- c) Undecided ( )
- d) Disagree ( )
- e) Strongly disagree. ( )

5. Work-overload helps significantly in causing academic staff to disengage from the University services.

- a) Strongly agree ( )
- b) Agree ( )
- c) Undecided ( )
- d) Disagree ( )
- e) Strongly disagree. ( )

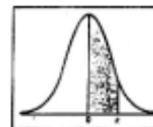
6. Under-funding play a significant role for academic staff to quit from the University service.

- a) Strongly agree ( )
- b) Agree ( )
- c) Undecided ( )
- d) Disagree ( )
- e) Strongly disagree. ( )

7. What is your perception of academic Staff performance during labor turnover?

- a) Excellent ( )
- b) Very High ( )

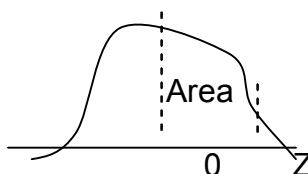




**CRITICAL VALUES**

**Appendix B  
The Standard Normal Distribution**

**TABLE A.4  
Areas Under the Normal Curve**

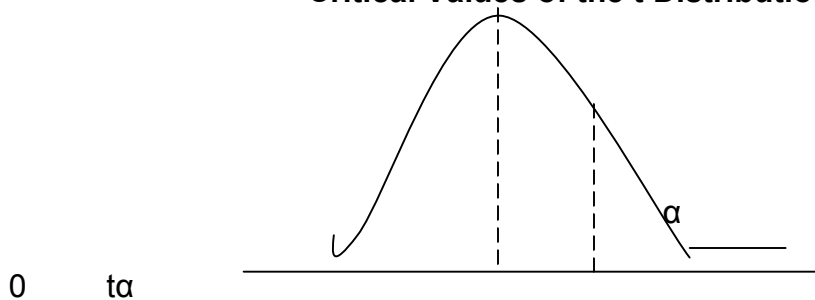


Z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-3.4	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002
-3.3	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003
-3.2	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005
-3.1	0.0010	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007
-3.0	0.0013	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010
-2.9	0.0019	0.018	0.0017	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014
-2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	0.0020	0.0020
-2.7	0.0035	0.0034	0.0033	0.0032	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026
-2.6	0.0047	0.0045	0.0044	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037	0.0036
-2.5	0.0062	0.0060	0.0059	0.0057	0.0055	0.0054	0.0052	0.0051	0.0049	0.0048
-2.4	0.0082	0.0080	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0066	0.0064
-2.3	0.0107	0.0104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0089	0.0087	0.0084
-2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.0110
-2.1	0.0179	0.0174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143
-2.0	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183
-1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239	0.0233
-1.8	0.0359	0.0352	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294
-1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367
-1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455
-1.5	0.0668	0.0655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559
-1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0722	0.0708	0.0694	0.0681
-1.3	0.0968	0.0951	0.0918	0.0918	0.0885	0.0885	0.0869	0.0853	0.0838	0.0823
-1.2	0.1151	0.1131	0.1093	0.1093	0.1056	0.1056	0.1038	0.1020	0.1002	0.0985
-1.1	0.1357	0.1335	0.1292	0.1292	0.1251	0.1251	0.1230	0.1210	0.1190	0.1170
-1.0	0.1587	0.1562	0.1515	0.1492	0.1469	0.1446	0.1446	0.1423	0.1401	0.1379
-0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635	0.1611
-0.8	0.2119	0.2090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867
-0.7	0.2420	0.2389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148
-0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451
-0.5	0.3085	0.3050	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.2810	0.2776
-0.4	0.3446	0.3409	0.3372	0.3336	0.3300	0.3264	0.3228	0.3192	0.3156	0.3121
-0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.3520	0.3483
-0.2	0.4207	0.4168	0.4129	0.4090	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859
-0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247
-0.0	0.5000	0.4960	0.4920	0.4880	0.4840	0.4801	0.4761	0.4721	0.4681	0.4641
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7154	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9278	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441





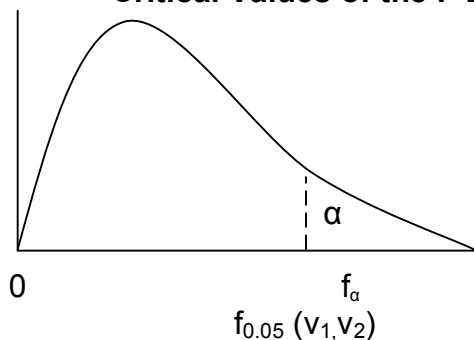
### Appendix C Critical Values of the t Distribution



V	A				
	0.10	0.05	0.025	0.01	0.005
1	3.078	6.314	12.706	31.821	63.657
2	1.886	2.920	4.303	6.965	9.925
3	1.638	2.353	3.182	4.541	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
6	1.440	1.943	2.447	3.143	3.707
7	1.415	1.895	2.365	2.998	3.499
8	1.397	1.860	2.306	2.896	3.355
9	1.383	1.833	2.262	2.821	3.250
10	1.372	1.812	2.228	2.764	3.169
11	1.363	1.796	2.201	2.718	3.106
12	1.356	1.782	2.179	2.681	3.055
13	1.350	1.771	2.160	2.650	3.012
14	1.345	1.761	2.145	2.624	2.977
15	1.341	1.753	2.131	2.602	2.947
16	1.337	1.746	2.120	2.583	2.921
17	1.333	1.740	2.110	2.567	2.898
18	1.330	1.734	2.101	2.552	2.878
19	1.328	1.729	2.093	2.539	2.861
20	1.325	1.725	2.086	2.528	2.845
21	1.323	1.721	2.080	2.518	2.831
22	1.321	1.717	2.074	2.508	2.819
23	1.319	1.714	2.069	2.500	2.807
24	1.318	1.711	2.064	2.492	2.797
25	1.316	1.708	2.060	2.485	2.787
26	1.315	1.706	2.056	2.479	2.779
27	1.314	1.703	2.052	2.473	2.771
28	1.313	1.701	2.048	2.467	2.763
29	1.311	1.699	2.045	2.462	2.756
inf.	1.282	1.645	1.960	2.326	2.576

\*Table A.5 is taken from Table IV of R. A. Fisher, *Statistical Methods for Research Workers*, Oliver & Boyd Ltd., Edinburgh, by permission of the author and publishers.

### Appendix D Critical Values of the F Distribution



V <sub>2</sub>	V <sub>1</sub>								
	1	2	3	4	5	6	7	8	9
1	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9	240.5
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38
3	10.13	9.25	9.28	9.12	9.01	8.94	8.89	8.85	8.81
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04

120	3.92	3.07	2.68	2.45	2.29	2.17	2.09	2.02	1.96
$\infty$	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88

\*Reproduced from Table 18 of *Biometrika Tables for Statisticians*, Vol. 1, by permission of E.S. Pearson and the Biometrika Trustees.

**Appendix E**  
**The Chi-square Distribution (Values of  $X^2_{\alpha}$ )\***

Df	$X^2_{0.995}$	$X^2_{0.99}$	$X^2_{0.975}$	$X^2_{0.95}$	$X^2_{0.05}$	$X^2_{0.025}$	$X^2_{0.01}$	$X^2_{0.005}$	Df
1	.0000393	.000157	.000982	.00393	3.841	5.024	6.635	7.879	1
2	.0100	.0201	.0506	.103	5.991	7.378	9.210	10.597	2
3	.0717	.115	.216	.352	7.815	9.348	11.345	12.838	3
4	.2070	.297	.484	.711	9.488	11.143	13.277	14.860	4
5	.4120	.554	.831	1.145	11.070	12.832	15.086	16.750	5
6	.6760	.8720	1.237	1.635	12.592	14.449	16.812	18.548	6
7	.9890	1.239	1.690	2.167	14.067	16.013	18.475	20.278	7
8	1.344	1.646	2.180	2.733	15.507	17.535	20.090	21.955	8
9	1.735	2.088	2.700	3.325	16.919	19.023	21.666	23.589	9
10	2.156	2.558	3.247	3.940	18.307	20.483	23.309	25.188	10
11	2.603	3.053	3.816	4.575	19.675	21.920	24.725	26.757	11
12	3.074	3.571	4.404	5.226	21.026	23.337	26.217	28.300	12
13	3.565	4.107	5.009	5.892	22.362	24.736	27.688	29.819	13
14	4.075	4.660	5.629	6.571	23.685	26.119	29.141	31.319	14
15	4.601	5.229	6.262	7.261	24.996	27.488	30.578	32.801	15
16	5.142	5.812	6.908	7.962	26.296	28.845	32.000	34.267	16
17	5.697	6.408	7.564	8.672	27.587	30.191	33.409	35.718	17
18	6.265	7.015	8.231	9.390	28.868	31.526	34.805	37.156	18
19	6.844	7.633	8.907	10.117	30.144	32.852	36.191	38.582	19
20	7.434	8.260	9.591	10.851	31.410	34.170	37.566	39.997	20
21	8.034	8.897	10.283	11.591	32.671	35.479	38.932	41.401	21
22	8.643	9.542	10.982	12.338	33.924	36.781	40.289	42.796	22
23	9.260	10.196	11.689	13.091	35.172	38.076	41.638	44.181	23
24	9.886	10.856	12.401	13.848	36.415	39.364	42.980	45.558	24
25	10.520	11.524	13.120	14.611	37.652	40.646	44.314	46.928	25
26	11.160	12.198	13.844	15.379	38.885	41.923	45.642	48.290	26
27	11.808	12.879	14.573	16.151	40.113	43.194	46.963	49.645	27
28	12.461	13.565	15.308	16.928	41.337	44.461	48.278	50.993	28
29	13.121	14.256	16.047	17.708	42.557	45.722	49.588	52.336	29
30	13.787	14.953	16.791	18.493	43.773	46.979	50.892	53.672	30

**Source:** *Biometrika Tables for Statisticians*, Volume I, 3<sup>rd</sup> ed., Cambridge: University Press, 1966.

**Appendix F**  
**Critical Values of Spearman's Rank Correlation Coefficient**

n	$\alpha = 0.05$	$\alpha = 0.025$	$\alpha = 0.01$	$\alpha = 0.005$
5	0.900	—	—	—
6	0.829	0.886	0.943	—
7	0.714	0.786	0.893	—
8	0.643	0.738	0.833	0.881
9	0.600	0.683	0.783	0.833
10	0.564	0.648	0.745	0.794
11	0.523	0.623	0.736	0.818
12	0.497	0.591	0.703	0.780
13	0.475	0.566	0.673	0.745
14	0.457	0.545	0.646	0.716
15	0.441	0.525	0.623	0.689
16	0.425	0.507	0.601	0.666
17	0.412	0.490	0.582	0.645
18	0.399	0.476	0.564	0.625
19	0.388	0.462	0.549	0.608
20	0.377	0.450	0.534	0.591
21	0.368	0.438	0.521	0.576
22	0.359	0.428	0.508	0.562
23	0.351	0.418	0.496	0.549
24	0.343	0.409	0.485	0.537
25	0.336	0.400	0.475	0.526
26	0.329	0.392	0.465	0.515
27	0.323	0.385	0.456	0.505
28	0.317	0.377	0.448	0.496
29	0.311	0.370	0.440	0.487
30	0.305	0.364	0.432	0.478

\*Reproduced from E. G. Olds. "Distribution of sums of squares of rank differences for small samples," *Ann Math. Stat.*, vol.9 (1938), by permission of the editor.