FACTORS AFFECTING THE PRODUCTIVITY OF EMPLOYEES IN MANUFACTURING FIRMS IN NAIROBI

BY

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DECLARATION

This project is my original work and has not been presented for a degree in any other University.

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ABSTRACT

The productivity of manufacturing firms has been a problem to most employers and the government in the recent times. It is now becoming a daily routine for firms to make losses. Rapid technological changes, globalization and the liberalization of the world product market have further compounded this problem. However, despite the new trend very little is known of the factors that affect firm productivity.

The main objective of the study was to establish the factors that influence the productivity of a firm. The study explored the extent to which increased employee turnover; good quality raw materials and well-maintained machines affect productivity.

The study targeted a population of 183 manufacturing firms out of which a sample of 20 firms and 5 respondents from each firm were obtained by simple random sampling. A pilot study was also done from two firms in the population. Both primary and secondary data were collected. Primary data were collected by the survey method; personal observation, oral interview and self-administered questionnaires. Both closed and open-ended questions were used but closed questions of the Likert scale type were emphasized. Secondary data was obtained from journals, magazines, books and the internet. The collected data were summarized in form of tables, percentages and mean scores.

The data were then processed and analyzed statistically. Appropriate computer software (SPSS) was used to analyse the data. The data were then interpreted and conclusions and recommendations made. The study was limited by low response or non-response to some of the questionnaires. Secondary data and the results of the pilot study were used to solve this problem.

The results of this research were anticipated to be useful to managers, employees, employers, researchers and the government. The study concludes that raw material quality, job satisfaction, machine maintenance and high employee turnover significantly affect the overall productivity of a firm.
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DEDICATION

To my beloved wife, son, father, mother, brothers and sisters for their support. I appreciate the patience and moral support they gave me throughout the study period. Also special dedication to all my lecturers and colleagues for their fruitful encouragement during this gruelling course.
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DEFINITION OF TERMS

**Firm:** It is a basic unit of decision-making that uses economic resources to produce goods and services with a view to selling them to consumers or other buyers in order to earn a profit.

**Productivity:** Is the rate at which a company makes goods.

**Turnover:** Rate at which employees leave a company and are replaced by new people.

**Layoffs:** Include separations associated with downsizing that do not result in immediate employee turnover costs for replacements.

**Retrenchment:** When an employee’s service is terminated because the firm can no longer provide work for the employee to do.

**Staffing costs:** Sometimes called cost per-hire – include the costs of recruiting job applicants (such as advertising or job-board postings), screening applicants, personnel search service brokerage fees, relocation expenses and signing bonuses

**Victims:** Employees who have left the firm.

**Survivors:** Employees who remain after a turnover.

**Separations:** Are all terminations of employment for any reason that occurred during the period under review.

**Hires:** Include the total number of additions made to the payroll at any time within the month.

**Questionnaire:** A set of questions on a form, which is completed by the respondents in respect of a research project.
CHAPTER ONE
INTRODUCTION

1.1. BACKGROUND TO THE STUDY

As manufacturing firms undertake globalization and liberalization, business is becoming more turbulent and competitive, the market places are becoming more unpredictable than at any time in life (Schwartz 1999). Technological advances both at the national and international levels have further abetted this. Economically, liberalization has not only created benefits e.g. easy access to new markets and increased mobility to the factors of production and competition for them but has also led to increased loss of experienced workers, dumping of low quality goods to the market and even closure of several corporate businesses (Nyamu, 2004). Increasing world competition has also led firms to seek lower labour costs and increased productivity (Chao & Kozlowsky 1994,) thus making it very important to establish the factors that affect productivity in order to come up with ways of controlling them.

Thus manufacturing firms play a very great role in the social economic development of any economy in the world (Kalii F, 1997). They are responsible for the production of goods and services, which are aimed at improving the well-being of customers. They translate raw materials into goods and services for the benefit of the society (Nyamu, 2004). The East African Portland Cement Company (EAPCC) Limited is a manufacturing company that produces and exports cement within the East African region. The main factory is located along Mombasa road near Athi River Township but the company has depots/distribution points across the country. The company enjoys a huge customer base in Kenya, Uganda and Tanzania and is currently in the process of
expanding to Southern Sudan and Rwanda where they have secured a huge supplies order (Daily Nation 17th June 16, 2005).

The large quantities and high quality products of the company have been produced through the interaction of several factors: high quality raw materials, well trained, skilled, satisfied and experienced employees and well-maintained machines and equipment.

Since the company is currently in the process of expanding its sales to Southern Sudan and Rwanda where they have secured a huge supplies order hence it needs to increase the quality and quantity of output to meet the new demands. However, a major challenge to this goal is the increased problems that have currently hit the company and are likely to affect the ability of the company to produce the required quality and quantity of goods.

The company is encountering the following problems: reduced quality and quantity of output, delayed production and stoppage of some of the firm’s machines and this needs to be controlled before it is too late.

For any country to succeed in improving and consequently maintaining a high economic growth, it is imperative that the manufacturing firms are efficiently managed in order to help earn the country enough revenue to manage its affairs. A more efficient, effective and stable manufacturing sector is therefore key to the country’s growth and development. Consequently, it is vital that the available resources in the firms are deployed optimally in high priority areas so that they can assist in achieving the government objectives of quality, efficient and effective product and service delivery to the public (Smith & Hedland 1993). Given the current social economic challenges facing the country, it is imperative that urgent action needs to be taken both to refocus the manufacturing sector to enable it to contribute better to economic and social development
and to ensure that it utilizes its resource base efficiently and effectively. It is on this background that this study was undertaken in order to establish the factors that affect the productivity of manufacturing firms in Nairobi.

1.2. STATEMENT OF THE RESEARCH PROBLEM

The global environment is becoming extremely competitive and good employees, machines and high quality raw materials will enable firms to be productive and hence remain competitive. High quality and satisfied top human resources provides an organization with strategic advantages over its competitors in terms of quality strategic plans and decisions to help cope with the turbulent business environment (Kalii F. 1997). Unfortunately, most companies worldwide draw their employees from a restricted pool of potential employees and managers (Adler, 1988) and most of these employees and managers do not remain with the company for long and this greatly affects the outputs of the affected firms. However, over the years, the productivity levels among manufacturing firms in Kenya have been steadily declining. These decreasing productivity levels are now threatening the ability of firms to meet the high demands for good quality products by customers.

It is on this background that this research was undertaken to establish the factors that affect the productivity of manufacturing firms. More specifically the study was exploring the influence of the following factors: raw material quality, well-maintained machines, job satisfaction, and employee turnover, on the productivity of manufacturing firms.
1.3. GENERAL OBJECTIVE
To explore the effect of employee turnover, job satisfaction, good quality raw materials and well-maintained machines on the productivity of a firm.

1.4. SPECIFIC OBJECTIVES
a). To establish the influence of increased employee turnover on productivity.
b). To establish the influence of raw material quality on productivity.
c). To establish the influence of machine maintenance on productivity.
d). To establish the extent to which job satisfaction influences productivity.
e). To establish other factors that influence the productivity of a firm.

1.5. RESEARCH QUESTIONS
a). To what extent does increased employee turnover influence productivity?
b). To what extent does the quality of raw materials influence productivity?
c). To what extent does the maintenance of machines influence productivity?
d). To what extent does high employee job satisfaction influence productivity?
e). What other factors influence the productivity of a firm?

1.6. SIGNIFICANCE OF THE STUDY
With the prevailing economic conditions, sources of livelihood are diminishing. Results of this study will be significant at the theoretical, empirical and policy levels. This research aims at providing information and guidance to employers on the factors that influence the productivity of manufacturing firms. As a result, employers will be able to
understand the effects of turnover, machine maintenance, job satisfaction and good quality raw materials on the productivity of a firm and hence be in a position to maintain these factors at levels that will not reduce the productivity of the firm.

The results of the study will also provide reference to those who want to conduct research on the factors that influence the productivity of a firm in future. This is in terms of quality and quantity of output produced in a firm. At the empirical level, the findings of this research will assist employers to determine whether increased productivity is worth investing in and also to gauge the productivity increment ability of manufacturing firms.

The government will use the analysis to regularize the industrial sector in general and also in policy formulation. Thus, based on the findings, the policy-makers will be able to come up with policies that will assist in maintaining high levels of productivity in terms of quality and quantity of products. This will help in maintaining high levels of revenue collected from the sale of products.

The study is also of significance to manufacturing firms and governments as they deal with the suppliers of raw materials and machines to the firms. This will ensure that the suppliers bring in the best quality raw materials and machines. The study offers them knowledge that will guide them in planning, organizing and implementing successful productivity improvement strategies. This will ensure that they import the required quality and quantities of raw materials and machines in order to maintain high levels of productivity. It is thus critical that companies have good productivity benchmark data to
help them gauge their competitive position and plan effective human resource management strategies.

Finally, the study will try to consider what increased productivity and the current trends mean to managers, corporate leaders and today’s Kenyan workforce- what can be expected, what should be done to prepare for increased demands for products in organizations and what workers can expect from their employers when the output levels are too high or too low. By understanding this, it is expected that the Kenyan business firms and government will be able to achieve their anticipated quantity and quality of output objectives and maintain the firm’s productivity at high levels.

1.7. SCOPE OF THE STUDY

The study was concerned with assessing the factors that affect the productivity of manufacturing firms. It purposely confined to manufacturing firms in Kenya specifically in Nairobi. The study covered only one sector, that is, the manufacturing sectors and was thus limited in its setting. It did not consider the factors that affect the productivity of other sectors and in particular the service and commercial sector.

The study was limited to Nairobi due to the time factor and lack of adequate resources to cover other parts of the country. The researcher is also well-versed with the city and therefore movement would not be a problem because he knew where the firms were located. Nairobi was also a convenient place for the researcher because of its closeness to Machakos where the researcher resides.
Manufacturing firms were chosen for being the largest and most common organizations in the country. Although productivity is affected in every sector in Kenya, this research however only considered a small sample of 20 manufacturing firms. The study pursued an integrated approach of the entire factors that in any way affect the quality and quantity of output, thereby focusing on the factors that influence the productivity of a firm.

The study made the following assumptions: that finances are available, labour relations are good and that the government policies do not have any effect on productivity in terms of quality and quantity of output. The study also omitted political instability therefore its scope was further limited. This is because political stability is necessary if production is to continue without interruptions.

The research was also limited by local literature review, as some of the factors that influence productivity are not well-documented in literature e.g. job satisfaction and employee turnover are fairly new and rare concepts in Kenya today. This is due to the high unemployment rates in the country that make it difficult for one to leave a job and look for another one elsewhere.
CHAPTER TWO
LITERATURE REVIEW

2.1. INTRODUCTION

The quantity and quality of factors of production available to a company will affect productivity hence the level of income. Labour and capital also influence productivity. If a company has an adequate supply of skilled labour that is appropriately employed, then productivity will be high. Similarly, the availability of modern forms of capital such as machinery and other equipment will also improve productivity. The entrepreneurial skills that employees have are also critical in determining the level of output (Nyamu, 2004).

The various factors of production have to be combined in appropriate proportions in order to achieve the desired levels of production. It is in this area that the entrepreneurs must decide what they are to produce and how to produce it. Technology is a key factor in determining how a particular activity will be carried out or how a particular production process is to be undertaken. Hence the level of technology, technical knowledge and technical progress will influence the level of productivity in a company and its output in terms of quality and quantity. If the company employs advanced technological methods in its production, the total output will increase and the level of income will go up. The entrepreneurial ability of the employees of a company will also greatly influence the level of productivity and income of the company.

Separations related to layoffs (reductions of workforce because of general economic conditions or company-specific changes) do not affect a firm’s productivity in the same way as separations that necessitate recruiting, hiring and training a replacement (Batt
1998). This is because involuntary loss of experienced employees may sometimes not require hiring a replacement because the intention of the firm was to cut costs through downsizing.

Increased separation levels also have a great effect on the productivity of manufacturing firms because of its effect on the quality and quantity of output and increased costs. Turnover costs for many organizations are very high and significantly affect the financial performance and productivity of an organization. Direct costs include recruitment, selection, and training of new people. This new people do not start performance at 100 percent efficiency and hence there is a decline in productivity when employees leave a firm and new ones are recruited. Much time and expense also go into this process. Indirect costs include such things as increased workloads and overtime expenses for coworkers, as well as reduced productivity associated with low employee morale (Branham, 2000).

2.2. CONCEPTUAL FRAMEWORK

Various factors have been highlighted as influencing the productivity of a firm. These include the raw material quality, maintenance of machines and equipment, job satisfaction and the quality of employees. The productivity of a firm can be measured by considering the quality and quantity of output.

Previous researches have shown that increased separation rate lowers the productivity of a firm by reducing the quality and quantity of output in the firm. Direct evidence that reduced number of employees affects a firm's productivity has been weak. Inadequate data are some of the most important factors responsible for this problem (Gustman &
Productivity studies have long been hampered by the lack of direct measures of individual employee or firm productivity.

In the absence of direct evidence, my study focused on indirect evidence that poor machine maintenance, poor quality raw materials and lack of job satisfaction are associated with lower organizational productivity. A number of dependent and independent variables were constructed for this purpose. I regressed a variety of indirect measures of organizational behaviors that are inputs into individual and organizational productivity.

Figure 2.1. Relationship between the dependent and independent variables

As discussed by Dyer and Reeves (1995), assessment of the influence of quality of machines and raw materials on firm productivity can be undertaken using organizational

outcome measures (i.e. quality and quantity of output). Boselie and Dietz (2003), in their review, identify quantity as the most frequently examined outcome measure (Guthrie, 2001; and MacDuffie, 1995), followed by product/service quality (MacDuffie, 1995).

Productivity has also been documented in the literature (Koch & McGrath, 1996; MacDuffie, 1995). A relationship is thought to occur because the combination of superior hiring, enhanced training, aligned incentives and information sharing, all result in a more talented, committed group of employees who utilize their tacit knowledge to enhance workforce productivity. This leads to increased quality and quantity of output in the firm.

Human capital directly impacts on a firm’s productivity and hence enhances a firm’s performance (Huselid, 1995). Human capital theory provides the primary logic for the effect of number and level of experience of employees on organizational productivity. Voluntary turnover represents the loss of firm specific human capital and lessens the productive capability of the workforce. Huselid (1995) examined mediating relationships by simultaneously introducing measures of turnover and workforce productivity into his model. The model he produced specifies both the direct and indirect relationships between number and type of employees, workforce productivity and firm’s performance.

Job tenure and probability of quits, and probability of and days of being laid off will be used to measure the changes in the numbers of employees and their experiences depending on the length of service, while quality and quantity of output will be used to measure productivity.

Training is positively related to organizational productivity. Job rotation and participation in decisions are measures of the enhanced employee participation in the organization of work that may contribute to productivity.
Developing targeted retention initiatives will not be as much of a priority as the need to control aggregate levels of employee movement until there is an element of workforce consistency, or sufficient labour power. Coping with low levels of employees can rob managers of the time and space necessary to plan. In such instances, increased levels of loss of experienced employees can have a very negative effect on a firm’s productivity.

2.3. WORKFORCE PRODUCTIVITY

Hall (1974) defines productivity as an organization activity of transforming raw materials into finished products. It covers all the physical and mental efforts, which satisfy our wants, that is, in the production of goods and the provision of services. Labour productivity is a crucial organizational outcome. At a general level, labour productivity, defined as "total output divided by labour inputs" (Samuelson & Nordhaus, 1989), indicates the extent to which a firm’s labour force is efficiently creating output. Organizational productivity is composed of those who do well, those who do okay and those whose performance is less or much less than okay. Consequently, most companies struggle while attempting to improve the combined output of their human capital while receiving a continually increasing return on their human capital investment.

Labour productivity is often considered a necessary, if not a sufficient, condition for long-term organizational success and strategic human resource management theorists (Delery & Shaw, 2001) have identified it as a crucial indicator of "workforce performance". Given the above, it is not surprising that productivity has been used as an outcome variable in a large body of work in the strategic human resource management literature. Based on prior literature (Koch & McGrath, 1996); productivity was
operationalized as the log of the ratio of firm sales to the number of employees. The productivity of a firm can be estimated by checking the quality and quantity of products produced in the firm during a certain period. It can also be estimated by checking the bottomline of the company. Based on such checks, it is possible to determine the overall productivity and hence the performance of the firm during a certain financial period.

2.4. FACTORS AFFECTING PRODUCTIVITY

2.4.1. Quality of Machines

The availability of modern forms of machinery and other equipment will improve the productivity of a firm. Technology influences the way resources are used, the overall cost of production and the prices of goods produced, it enables producers to produce more of a commodity. It determines how a particular production activity will be carried out hence the level of technology; technical knowledge and technical progress will affect the productivity of a firm. If the company employs advanced technological methods in its production, the total output will increase (Mege et al 2004). If the machines used in the production process are of good quality and are well-maintained then, the productivity of the firm will increase. This is because there will be no disruptions to the production process due to machine breakdowns. The quality of the products will also be high if the quality of the machines is high.

2.4.2. Raw Material Quality and Quantity

As discussed by Dyer and Reeves (1995), assessment of the influence of quality of machines and raw materials on firm productivity can be undertaken using organizational
outcome measures (i.e. quality and quantity of output). If the quality of raw materials used in the firm is low then, the quality of products is also going to be low and if raw material quality is high then, quality of products will also be high. If the quantity of raw materials is high then, the quantity of products will also be high and if the quantity of raw materials is low then, the quantity of products will also be low. This shows that there is a direct relationship between the quantity and quality of output and the productivity of a firm.

2.4.3. Job Satisfaction

Job satisfaction is a very important component to employees in any organization. The result of this satisfaction is increased commitment to the organization, which may or may not result in increased performance (Kyongo, 2006). People working in an organization soon develop a set of attitudes about the work, supervision, co-workers and pay among others. This set of attitudes is usually referred to as job satisfaction (Szilagyi and Wallace, 1980). Where job satisfaction leads to increased commitment normally, there will be a decrease in problems like absenteeism, lateness, tardiness, labour turnover, burnout and stress, disputes and strikes and these will lead to an increase in the productivity of the firm (Lawler 1973).

According to Vroom (1964) job satisfaction follows effective job performance and hence high productivity rather than the other way round. Davis (1977) quoting Kahn, says that job satisfaction does seem to reduce absence, turnover and perhaps accident rates. It may also be part of grievances, low productivity, discipline problems and other organizational difficulties.
Sinha (2005) discusses the Hawthorne Effect and shows the relationship between employees working conditions, social conditions and productivity. The experiment conclusively established that the performance of workers is influenced by their surroundings and by the people that they are working with. If the working conditions are favourable and the people are friendly then, the job satisfaction is high and this leads to increased productivity of the employees individually and the firm collectively. According to Nzuve (1997), a satisfied worker has fewer incidences of absenteeism, turnover and tardiness and is normally more productive in terms of quality and quantity of output. If individuals are going to be best able to contribute to helping the organization continually improve, they need to be fully in tune with the organizational objectives. At the same time, the organization needs to understand the developmental objectives of the people who work for it (Nedham, 2000).

2.4.4. Employee Turnover

If a company has an adequate supply of skilled labour that is appropriately employed, then productivity will be high. Thus, the entrepreneurial skills that the employees have are very critical in determining the level of output (Mbuvi, et al 2004). Labour turnover typically refers to separations that require hiring a replacement. Separations related to layoffs (reductions of workforce because of general economic conditions or company-specific changes) do not affect a firm's productivity and costs in the same way as separations that necessitate recruiting, hiring and training a replacement (Batt 1998). Koch (1996), uses ‘turnover’ to mean voluntary cessation of membership of an organization by an employee of that organization. Voluntariness in this case is very
important because it is in instances where the employee controls the leaving process that organizations and theorists have an interest in. This definition also refers to 'cessation of membership' (Mobley 1982), but it should be acknowledged that from a more institutional or organizational perspective, turnover may also include accession or entry. The scope that a voluntary / involuntary dichotomy offers for classifying the phenomenon enables directed, systematic research (Price 1977). Particularly where turnover is thought to be associated with a factor (such as organizational commitment), or to be preceded by a psychological state (such as intent to quit). Drawing the distinction between voluntary and involuntary turnover is important, otherwise assessment of such a relationship in terms of all 'organization leavers' will be flawed. This is because involuntary turnover may sometimes not require hiring a replacement because the intention of the firm was to cut costs through downsizing.

Persistently high levels of loss of experienced employees, however, are costly both to individual organizations and the economy as a whole and adversely affect productivity. As is common in the literature (Bennett et al 1993; Shaw et al 1998) we use respondent reports to measure turnover. Survey respondents will be asked to provide information on the voluntary turnover rate (percentage of employees who voluntarily departed the firm) during 2006 for both unionized and non-unionized employees. Using the number of employees in each group (unionized and non-unionized), a weighted average of overall voluntary turnover for each firm will be computed.

Although a relatively clear-cut behaviour (Porter & Steers 1973), and one which apparently readily lends itself to simple cumulative measurement, attempts to meaningfully record the incidents of how employee loss can result in ambiguity. Yet the
need for organizations to measure the entire employee movement is substantive (Campion 1991). Turnover is an index of organizational effectiveness (Vandenberg & Nelson 1999) and as such, it warrants attention and some understanding per se.

That lost productivity due to loss of workers can be critical for small businesses. "An analysis of Census Bureau data confirms that small enterprises have higher chances of loss of experienced employees than larger firms. And, while a big business may survive the effects of a revolving employment door, most small operations cannot". The causes of increased turnover can be established using various methods. Dissatisfactions and problems contributing to increased turnover are more likely to be brought directly to management's attention where there is effective joint consultation.

The views of individual workers can also help point to problem areas and there are two main ways in which these will be obtained: through exit interviews and attitude surveys.

i). Exit interviews: This will help in highlighting problem areas within the organization and in identifying any characteristics that may be common to early leavers. As well as recording classification details about leavers, they will be asked why they are leaving and what they think is good and bad about the firm. However, it should be kept in mind that workers may not always disclose the real reasons for leaving or their true views about the organization.

ii). Attitude surveys: This is a more revealing method of finding out what workers like and dislike about their jobs and their organization. Existing workers will be asked questions covering a whole range of work issues. Attitude surveys will attempt to involve every worker by asking him or her to complete a written questionnaire. Their success will largely depend on good questionnaire design and the level of response. Labour turnover
can also be predicted. Turnover attracts interest given that instances of turnover are the result of decisions to leave. These decisions are often characterized as momentous (Sheridan & Abelson 1983), representing a defining point in a person's career and life history (Krau, 1981). Some theorists have challenged this assumption, pointing to decisions to turnover, which are governed by non-work considerations (Cohen, 1999), or are impulsive (Mobley, 1977), or to employees who have a more casual attitude to employment (Lee & Mitchell, 1994). The extent to which it makes sense to think of the decision to leave as being the end part of a process, has encouraged research from organizational theorists because of the apparent opportunity it provides to identify determinants or precipitators of turnover, thus offering potential to predict and perhaps then control the loss of experienced employees.

Although some research has focused on potential predictors of turnover behaviour, such as job tenure, locus of control and demographic correlates, bivariate accounts (Clark-Rayner & Harcourt 2000) have proved insufficiently complex to capture the phenomenon, although many models posit a relationship between an affective disposition or variable such as satisfaction and turnover, with turnover preceded by intentional variables such as 'intent to leave', or 'withdrawal cognitions'. The bulk of turnover models rely on assessment of the moderating or predictive role of any of a vast number of competing variables, aim to predict turnover via clarification and ordering of the role of antecedent factors, factors which are seen as determined solely by interactions between the employee and their work environment, rather than other 'external, unexpected or random events' (Lee & Mitchell 1994), or 'non-work domain variables' (Cohen, 1999).
These theories fail to describe a large proportion of voluntary turnover decisions, and thus have low ecological validity (Lee & Mitchell 1991).

The goal of 'effective management of turnover' dictates that a high level of sophistication, and thereby particularity, needs to be achieved by organizations in order to selectively influence the turnover process. Voluntariness may need to be defined differently for each organization (Samuel, 1969) and measurement of turnover may need to be at a level of detail far greater than that currently employed by many organizations (Campion, 1991). Additionally, even where problems in costing turnover (Cheng & Brown 1998; Hom 1992) can be resolved, there remain inescapably problematic aspects to determining relationally defined aspects such as avoidability (Abelson, 1987) and functionality (Dalton et al 1982).

The phenomenon of turnover is of interest to organizations and theorists because it is significant (Price 1977), potentially costly (Mobley 1982) and relatively clear-cut (Porter & Steers 1973). It also describes the end result of a decision process (Lee & Mitchell 1991). All these characteristics also indicate that the phenomenon is likely to attract interest from researchers.

2.5. OTHER FACTORS AFFECTING PRODUCTIVITY

2.5.1. Training

Training is positively related to organizational productivity. According to Graham and Bennet (1998), under favourable circumstances, training has the important dual function of utilization and motivation. By improving the employee's ability to perform the tasks required by the company, training allows better use to be made of human resources by
giving employees a feeling of mastery over their work and of recognition by management hence their job satisfaction is increased leading to increased commitment to the job hence increased productivity.

The assumption that training boosts productivity is generally accepted by academics and policy-makers alike. Recent studies by Bartel (1994) found that firms that support greater training expenditures experience more rapid increases in quality and quantity of output, and hence training leads to higher productivity. Because quality is all about continuous improvement in an organization, it necessarily involves ongoing training and development of all staff. Employees of modern organizations need to be trained in approaches to quality such as total quality management and benchmarking (Nedham, 2000). If individuals are going to be best able to contribute to helping the organization continually improve, they need to be fully in tune with the organizational objectives. At the same time, the organization needs to understand the developmental objectives of the people who work for it.

2.5.2. Worker Participation

There is some evidence from the empirical literature that enhanced worker participation may contribute to productivity. For example, Wilson and Peel (1991) did a research and found that firms which encourage employee participation in decision-making have lower quit rates and absenteeism rates than others leading to low rates of lost experience and production time, hence are more productive. Batt, Colvin, and Keefe (2002) conclude that those employees with employee participation in offline problem-solving teams and self-directed workgroups have lower quit rates and higher productivity than others. Using the
US National Employers Survey, Cappelli and Neumark (2001) found establishments with self-directed workgroups have lower quit rates of experienced labour and are more productive than others.

Adversarial employer-employee relations featured by frequent strikes and lockouts can be extremely disruptive to the production process and result in substantial loss in productivity. However, firms that encourage worker participation in decision-making are very productive in terms of quality and quantity of output because the employees are able to work on their own with minimum or no supervision. Job rotation and participation in decisions are measures of the enhanced employee participation in the organization of work that may contribute to productivity.

2.5.3. Political Stability

This is necessary if production activities are to be carried out without interruptions. To plan and execute production plans, firms require a stable political environment (Ngugi, et al 2004). With political stability it is possible to focus on how to improve productivity and generally increase the level of profitability in the firm. Political instability leads to frequent disruptions to the production process leading to reduced output. Some raw materials and products also go in to waste when production is instantly stopped before the products are completely manufactured.
2.6. PREVIOUS STUDIES DONE IN THE AREA

Various studies have been done on the factors that affect the productivity of a firm. However, most of these studies fail to describe a large proportion of how these factors affect the quality and quantity of output, and thus have low ecological validity (Lee & Mitchell 1991). The study by Davids 2003 only covered one sector, that is, the commercial and services sector and was thus limited in its setting. It did not consider the effect of the factors on productivity in other sectors and in particular in the manufacturing and commercial sector. It thus did not allow for generalizations to cover all other sectors of the economy.

The research by Mobley (1982) did not differentiate the effect on productivity between employees who moved voluntarily and those who were forced out of the company as a result of the firm’s intention to reduce labour costs through downsizing. This is because employees who move voluntarily may have a great effect on the quality and quantity of output produced when they leave. This is because those employees who come to replace them do not start work at 100% efficiency. Lee and Mitchell (1994) did a research to identify the determinants or precipitators of low firm productivity thus offered a potential to predict and perhaps then control firm productivity. Wilson and Peel (1991) did research and found that profit-sharing schemes and employee participation had an effect on employee performance and hence the productivity of a firm.

Academics and policy-makers alike generally accept the assumption that training boosts productivity. Recent studies by Bartel (1994) found that firms that support greater training expenditures experience more rapid increases in employee performance, and thus training leads to higher productivity.
Often organizations use a relatively crude measure of turnover (Marchington & Wilkinson, 1997) which do not distinguish the cases where people left because they were dissatisfied, from cases where people left because of ill health or where they retired, or where they were made redundant. Yet measurement of turnover needs to be sophisticated enough to enable those responsible for resource planning to identify various categories of leavers (Worthington, 1992). This is because any single figure measure of turnover will be inadequate in so far as it treats all those who leave as an homogenous group. To fill this gap in the information provided by the previous studies, the researcher carried out a study aimed at specifically improving on the data provided by the other researchers. Specifically, this research was done in order to establish the factors that influence a firm’s productivity.

2.7. CRITICAL REVIEW OF MAJOR ISSUE

Productivity benchmarks that are relevant to corporate human resource management decisions and cost analysis should distinguish between production levels that trigger replacement-staffing activity and separations that result from workforce reduction layoffs (Lynne Sullivan 1999).

Companies that can achieve a higher than average of output gain a competitive advantage and are thus more productive. Moreover, companies that experience low quality outputs suffer in the increasingly competitive environment (Davick, 1996). The key to profitable human resource management is to keep production costs relatively low to the competition by careful management of both the raw materials and machines and the efficiency of the staffing and training of new employees (Nobscot.com). Relevant and timely data
regarding production rates across the economy, for specific industries, and by occupation can help companies plan and evaluate their own human resource management operations to achieve realistic and effective goals that payoff in terms of lower machine maintenance costs, higher productivity and enhanced profitability (Kruger, 1993).

2.8. SUMMARY AND GAPS TO BE FILLED BY THE STUDY

Organizational productivity is composed of those who do well, those who do okay and those whose performance is less or much less than okay. Consequently, most companies struggle while attempting to improve the combined output of their human capital while receiving a continually increasing return on their human capital investment.

A series of empirical studies over the last decade have supported the belief that low employee and firm productivity can, in fact, affect organizational success (Arthur, 1994; Batt, 2002;). This is because low performance by individual employees lowers a firm’s productivity. As other sources of competitive success have become less important, what remains as a crucial, differentiating factor is the organization, its employees, and how they work (Pfeiffer, 1994).

It remains true that little is known about the mechanisms by which raw material quality, machine maintenance, job satisfaction and employee turnover affect the productivity of manufacturing firms. In this study, I addressed this gap by exploring the factors that affect a firm’s productivity. More specifically, I tested the relationship between raw material quality, machine maintenance, job satisfaction and high employee turnover and workforce productivity. In doing so, I was able to contribute to the emerging body of research on the effect of various factors on a firm’s productivity.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1. STUDY DESIGN

This chapter describes the research methodology that was used in the study. It details out the population that was studied, sample strategy, data collection methods and procedures; tools for data processing and analysis that were used. Also included in this chapter are the research instruments, sampling procedure, and data sources and data analysis techniques.

3.2. TARGET POPULATION

The study intended to establish the factors that influence the productivity of manufacturing companies in Nairobi. The population under study was made up of both employees and employers in 183 manufacturing firms located in Nairobi. Before the main study was done, a pilot survey was conducted in two (2) firms to test the validity of the proposed research instruments. Appropriate changes and corrections (minimal) were then made to incorporate ideas generated from the pilot survey. The actual study was then conducted later. The main focus was mainly to obtain data from at least fifty percent (50%) of the senior managers specifically the personnel and production managers and fifty percent of the junior employees in the population of interest.

3.3. SAMPLING STRATEGY

It was not possible to interview all those involved in establishing the factors that influence a firm's productivity. The population under study was stratified into five main categories as follows: food and beverage producers, book and paper manufacturers,
industrial goods manufacturers, medical equipment and drug producers and chemical
substance manufacturers. Proportionate stratified random sampling was then used to
select a sample of 10% from each category as follows:

Table 3.1. Stratification of the firms in the population

<table>
<thead>
<tr>
<th>Category of firms</th>
<th>Total population</th>
<th>10% sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and beverage producers</td>
<td>67</td>
<td>7</td>
</tr>
<tr>
<td>Book and paper manufacturers</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td>Industrial good manufacturers</td>
<td>46</td>
<td>5</td>
</tr>
<tr>
<td>Medical equipment and drug producers</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Chemical substance manufacturers</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>183</strong></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

Source: Survey.

This gave a sample of 20 firms from the entire population. Each stratum was then
surveyed independently. Five people were selected from each firm using simple random
sampling method. This was mainly from the production and personnel departments.
Simple random sampling method was be employed because it gives all members of the
population equal and independent chances of being included in the sample. This
eliminates biasness in the selection of members and hence makes the sample a true
representative of the population. A total sample of 80 personnel in 20 manufacturing
firms was considered as part of the study and was interviewed.
3.4. DATA COLLECTION METHODS

Data were collected using the survey method; personal observations, oral interview and self-administered questionnaires to company employees and employers. The questionnaire was used because of its flexibility and convenience especially to the top-level managers who hardly ever have enough time during office hours to attend to non-business related issues. Both open and closed questions were used but more emphasis was given to closed questions particularly of the Likert scale type.

In the study, a sample of 80 respondents were interviewed from 20 firms. Both primary and secondary data sources were considered in the study. Primary data were collected using the survey method; personal observations, oral interview and self-administered questionnaires to company employees and employers. Secondary data were collected from the following sources: journals, magazines, books, and company prospectus. It was also sought from government reports and other documented sources with relevant information e.g. the internet, this assisted in filling up the gaps that were created by non-response to some of the questionnaires delivered to some of the firms already sampled for research. Secondary data also assisted the researcher to achieve the objectives of the study.

3.5. DATA ANALYSIS

Data collected from both primary and secondary sources were processed and analyzed statistically. Standard statistical tools which include descriptive statistical methods such as measures of central tendency and frequency distribution tables were used to analyze the data. Appropriate computer software, i.e. Statistical Package for Social Sciences
(SPSS) and MS Excel were also used where applicable. The results were presented in descriptive and inferential modes. Data from the completed questionnaires were also summarized in the form of tables, charts, graphs, percentages and mean scores. However, percentages and tables were used because they are easy to read and interpret by a variety of readers. The data were then analyzed, interpreted and conclusions and recommendations made from the tables. Where applicable, frequency distribution tables were drawn.

3.6. STUDY LIMITATIONS

The study encountered certain difficulties such as low response or non-response to some of the questionnaires already delivered to the firms and lack of cooperation from some of the selected respondents. Looking at secondary data from various sources assisted in solving this problem. Results from the pilot study were also very useful in solving the problem.

The study only covered one sector, that is the manufacturing sector and was thus limited in its setting. It also did not consider the factors that affect productivity in other sectors and in particular the service and commercial sector. It thus could not allow for generalizations to cover all sectors in the Kenyan economy.

The study was concerned with establishing the factors that affect the productivity of manufacturing firms. It purposely confined itself to manufacturing firms in Kenya specifically in Nairobi. The study was limited to Nairobi due to the time factor and lack of adequate resources to cover other parts of the country. Manufacturing firms were chosen for being the largest and most common organizations in the country.
The study may also not be very reliable. This is due to lack of consistency of the respondents due to different reasons e.g. different times of administration of the questionnaire, fatigue and also gender differences. The reliability of the results was enhanced by triangulation where personal observation, self-description and descriptions made by other people were able to provide the data that were compared to enhance reliability. The results of the pilot study were very useful in enhancing the validity and reliability of the results.

3.7. EXPECTED OUTPUT

At the end of the research, it was expected that the researcher would establish the effect of the independent variables on the dependent variable. Specifically, the researcher was able to establish the factors that affect the productivity of manufacturing firms. He was able to identify how raw material quality, maintenance of machines, job satisfaction and employee turnover affect the productivity of a firm. This research has been able to highlight the factors that influence the quality and quantity of the firm's output. The results of this research will also be very helpful to the managers of manufacturing firms in helping them to strategize on how to increase the quality and quantity of output.
CHAPTER FOUR
DATA ANALYSIS AND PRESENTATION OF RESULTS

4.1. INTRODUCTION

In this chapter, data from completed questionnaires were summarized and presented in form of tables, percentages and mean scores. The data were then analyzed using Statistical Packages for Social Sciences (SPSS) and MS Excel computer software. Both quantitative and qualitative data were extracted for appropriate analysis. The firms in the sample were selected from only firms in the manufacturing sector located in Nairobi. The distribution of firms selected for the survey is shown in appendix V table I.

Before the main study was done, a pilot study was done in two firms selected from the population of study. This was done between the 25th and 30th of June one week before the commencement of the main study. To assess the reliability of the productivity measures, this was followed by a visit to the identified sample firms where observations were made and, finally self-administered questionnaires were given to selected employees.

4.2. RESPONSES RATE OF RETURN

Out of all the manufacturing firms in Nairobi, 20 received a total of 80 questionnaires from which a total of 57 responses were completed and returned giving a response rate of seventy-one percent (71%). While initial respondents were production and personnel managers, the second respondents were junior employees.

The responses rate of return is shown in appendix V table II. From the table, it can be seen that seventy five percent (75%) of the managers filled and returned their
questionnaires. In the category of junior employees, seventy percent (70%) of the questionnaires were filled and returned. This rate of return was appropriate for me to proceed with the interpretation and analysis of the results.

4.3. QUANTITATIVE DATA ANALYSIS

The data obtained from the questionnaires were analyzed by computer. The data were first broken down into constituent parts to obtain answers to the research questions. Univariate analysis where one variable is analyzed with a view to describing it was used to analyze the data. The data on each variable were then summarized and displayed through frequency distribution tables, percentages and graphic presentations i.e. bar graphs.

4.3.1. Respondents Opinions on Factors Affecting Productivity

This part concentrates on respondents' opinions about the factors that affect the productivity of manufacturing firms. The Likert scale type statements ranging from strongly agree to strongly disagree were analyzed using mean scores.

Table III in appendix V presents the findings of the respondent's overall attitudes on the effect of various factors on the productivity of manufacturing firms. As the table shows, the respondents had positive mean scores for all the statements. For a positive mean score, the higher the score the more positive or favourable the attitude is for the dimensions tapped by the statement.

The positive mean scores ranged between 0.109 and 1.055 thus indicating varying degrees of positive attitudes for the dimensions tapped by each statement. The average
mean score was 0.544 thus in general; the respondents studied had a positive attitude that raw material quality, job satisfaction, machine maintenance and employee turnover have an effect on the productivity of manufacturing firms. Table VI presents the frequencies and percentages of employees who felt that employee turnover, job satisfaction, machine maintenance and raw material quality affect the productivity of a firm.

On average, 67% of the respondents were of the opinion that a firm’s productivity was affected by employee turnover. The results show that employee turnover has the greatest effect on a firm’s productivity among the factors of production. These figures are consistent with prior research.

The results also show that job satisfaction has a very significant effect on the productivity of a manufacturing firm. It significantly affects the quantity of output. However despite the fact that it lowers the quantity of products, it does not greatly affect the quality of products. Also, given the 71% response rate, I checked for possible non-response bias using two tests. First, late and early respondents were compared along key study variables. The assumption behind this test for non-response bias is that “late” respondents (those responses received after the second round of data collection) are very similar to non-respondents, given that they would have fallen into that category had the second set of questionnaires not been send. T-tests conducted showed no significant differences between the two groups (i.e., early and late respondents) along any of the key study variables, namely, firm productivity, job satisfaction, raw material quality, machine maintenance and employee turnover. Table VII in appendix VII presents the means and standard deviations among all study variables.
4.4. QUALITATIVE DATA ANALYSIS

The Marshals and Rossmans approach to qualitative data analysis was utilized to analyze most of the data obtained from questionnaires and interviews. The data that were collected from the research was typed and bound in book form. It was then summarized into a two page edited data form. From these two data forms the researcher was able to identify the ideas and patterns of opinions emerging from the data. The researcher was then able to make generalizations through inductive open-ended analysis. Out of the manufacturing firms in the population of interest twenty received a total of eighty questionnaires. Out of these fifty seven were filled and returned giving an overall response rate of seventy one percent. From the data collected most respondents were of the opinion that employee turnover and job dissatisfaction with the present job are the major factors affecting productivity. They reduce the quality and quantity of output. The data also show that most of the respondents believe that job satisfaction and employee turnover have a very great effect on productivity.

The effects of turnover and low job satisfaction identified in the study and those that are more difficult to estimate include loss of morale, burnout/absenteeism among remaining employees, loss of experience and disruption of continuity. Other factors affecting productivity identified in the study include: poor relationship with a line manager, lack of training and developmental opportunities, poor pay and also poor match between the person and the job. However, from the findings, most of the staff prefers to work in a firm that is associated with high quality production. They derive more prestige by working in firms that produce high quality products and make higher profits.
4.5. SUMMARY OF DATA ANALYSIS

This study is based on a survey of 20 manufacturing firms. The aim was to discover whether raw material quality, job satisfaction, machine maintenance and high employee turnover have an effect on a firm’s productivity, and also to find out other factors that affect a firm’s productivity.

The data from the study were analyzed both qualitatively and quantitatively and from that analysis the effect of employee turnover, raw material quality, job satisfaction and machine maintenance, on productivity was established. The effect of the factors on product quality and quantity was also established. Table VI gives a summary of the major factors that affect productivity.

This study was undertaken during the month of July when the annual stock taking and salary increments had been done and therefore job satisfaction was high among the employees. It found that over half (74%) of the respondents believe that firms experience reduction in quantity of output, 25% of the respondents said that firms experience reduction in quality of output, 19% said that firms experienced reduction in both quantity and quality of output when employees are not satisfied with the job. Thus job satisfaction and employee turnover affects quantity and quality of output in different ways. It is only a very small percentage of respondents (5%) who said that job dissatisfaction leads to an increase in both the quantity and quality of output.

This study also found reduced employee turnover, increased job satisfaction, good machine maintenance and high raw material quality to have productivity enhancing effects. These results are interesting and may advance the empirical literature on the
effects of various factors on the productivity of a firm. This study also lends some support to the hypothesis that job dissatisfaction causes employee turnover, which may lead to loss of individuals who are inherently productive hence leading to reduced firm productivity.
CHAPTER FIVE

SUMMARY OF MAJOR FINDINGS, CONCLUSIONS AND RECOMMENDATIONS.

5.1. INTRODUCTION
This chapter summarizes and discusses the research findings and outlines conclusions arrived at based on the set objectives. It also provides recommendations to the government and managers of manufacturing firms. Suggestions are also given to prospective researchers on areas in which future researches can be conducted.

5.2. SUMMARY OF MAJOR FINDINGS
The major findings obtained from the analysis of the results are summarized below in order to obtain answers to the research questions. The findings are summarized in form of tables and bar graphs are drawn from the data. All these have been posted to appendix V. The tables and bar graphs are then described below in order to enable the readers understand the findings better.

5.2.1. Job Satisfaction
From the results, 57% of the respondents said that job satisfaction has a very significant effect on the quality of output, 61% said that it significantly affects the quantity of output while 60% said that it affects the overall firm productivity. Eighty one percent (81%) of the respondents believed that job satisfaction leads to an increase in the productivity of a firm while its only 7% who said that job satisfaction leads to a decrease in productivity. Job satisfaction was found to lead to an increase both the quality and quantity of output.
5.2.2. Employee Turnover

From the findings, 55% of the respondents said that employee turnover affects the quality of output, 74% said that it affects the quantity of output while 67% said that it affects the overall firm productivity. Fifty eight percent (58%) of the respondents believed that high employee turnover leads to decrease in the productivity of a firm while its only 18% who said that employee turnover leads to an increase in productivity. Sixty one percent (61%) of the respondents said that employee turnover lowers the quality and quantity of output. Thus employee turnover was found to significantly lower the quality and quantity of output.

5.2.3. Machine Maintenance

From the results, 31% of the respondents said that machine maintenance affects the quality of output, 34% said that it affects the quantity of output while 28% said that it affects the overall firm productivity. Fifty two percent (52%) of the respondents believed that good machine maintenance leads to an increase in the productivity of a firm while its only 2% who said that good machine maintenance does not affect the productivity of a firm. Good machine maintenance was found to significantly increase the quality and quantity of output hence the overall firm productivity.

5.2.4. Raw Material Quality

From the findings, 58% of the respondents said that raw material quality affects the quality of output, 18% said that it affects the quantity of output while 21% said that it affects the overall firm productivity. Twenty three percent (23%) of the respondents believed that high raw material quality leads to an increase in the productivity of a firm
while it’s only 35% who said that poor raw material quality leads to a decrease in productivity. Raw material quality was found to have a significant effect on the quality of output but it has a very minimal effect on quantity of output.

5.2.5. Other Factors

From the findings, 27% of the respondents said that other factors affect the quality of output, 30% said that they affect the quantity of output while 19% said that it affects the overall firm productivity. These factors were highlighted as follows: poor relationship with a line manager, lack of training and developmental opportunity, poor pay and poor match between the person and the job. Of all these lack of training and developmental opportunity was found to have the greatest effect on productivity. These factors were found to have a very significant effect on the quantity of output but not on the quality. They significantly lower the quantity of output and also the overall productivity.

5.3. ANSWERS TO RESEARCH QUESTIONS

The analyzed data were interpreted (i.e. meanings, explanations and implications sought) in order to provide answers to the research questions. From the interpretations, the following answers to the research questions were found:

i). Employee turnover significantly influences productivity of a firm. It lowers the quantity of output but has a less significant effect on quality of output.

ii). The quality of raw materials does not have a significant influence on productivity. It significantly affects the quality of products but has no effect on the quantity of output.

iii). The maintenance of machines has a significant influence on productivity. Well-maintained machines lead to increased productivity both in terms of improved quality and
quantity of output. This is because there is no disruption of the production process hence quality is maintained.

iv). Job satisfaction has a very significant effect on the quality and quantity of output. Satisfied employees will work in a committed way hence ensure quality products. They will also work very fast in order to meet the required quantities of output. Thus satisfied employees are far more productive than dissatisfied employees.

v). Other factors identified in the study to have an effect on the productivity of a firm include: poor relationship with a line manager, lack of training and developmental opportunities, poor pay and also poor match between the person and the job. These were found to lower the quantity of output.

5.4. DISCUSSION

It is important that employers have an understanding of the rates of productivity of their employees and how they affect the organisation's effectiveness. Depending on the size of the business, an appreciation of the levels of satisfaction and turnover across occupations, locations and particular groups of employees can help in forming a comprehensive resourcing strategy.

By estimating the relative productivity of new employees during their first weeks or months in a role and that of resignees during the period that they were working, the extent to which employee turnover lowers the productivity of a firm can be established. Employee turnover costs affect the bottom-line and culture of a firm. A recent survey by the Institute of Personnel Development indicates, that job dissatisfaction and employee turnover lowers the productivity of the firm. This is because job dissatisfaction leads to
employee turnover, which in turn leads to stoppage of some machines as new machine operators are being sought to take up the positions left vacant by the departing employees. Also, as the new employee is learning the new job, the company policies and practices, etc. they are not fully productive. Co-workers and supervisors also lose productivity due to the time they spent on bringing the new employee "up to speed." Lost department productivity is also caused by a departing member of management who is no longer available to guide and direct the remaining staff. Turnover also affects on the completion or delivery of a critical project where the departing employee is a key participant.

Increased job satisfaction is associated with increased quality and quantity of output and somewhat greater workforce productivity but is not significantly associated with firm performance. Firm capital intensity, industry and firm growth and unionization have also been linked to market value (Huselid, 1995) and, as such, these paths to firm productivity are specified. Workforce productivity is significantly enhanced by investments in plant, property and equipment (i.e., capital intensity) and may also be affected by union density and historical industry and firm growth patterns (Freeman & Medoff, 1984).

Finally, measures of productivity may be positively influenced by business-level strategies emphasizing cost-efficiency (Zahra & Covin, 1993). Consistent with the correlation results, elevated rates of job dissatisfaction leads to increased employee voluntary turnover which in turn leads to a decrease in workforce productivity and this reduced workforce productivity negatively affects firm performance. Studies from the Gallup organization show that employees who are satisfied with their job have an above-average attitude toward their work and will generate twenty-two
percent higher productivity, and 27 percent higher profits for their companies. The research also found that larger companies experienced productivity improvement when they implemented effective job satisfaction and employee retention strategies. However, zero percent turnover is not desirable for a couple of reasons. First, if all employees stayed and the organization grew steadily, most employees would be at or near the top of their pay ranges and salary expenses would be extremely high. Second, new employees bring new ideas, approaches, abilities, and attitudes and keep the organization from becoming stagnant. Therefore, some employee turnover may be profitable to a firm when a new more effective and better performing employee is recruited to replace a departing employee.

Other effects of turnover identified in the study and that are more difficult to estimate include customer service disruption, loss of morale, burnout/absenteeism among remaining employees, loss of experience and continuity.

5.5. CONCLUSIONS

The study highlighted that the quantity of output was the most influenced by job satisfaction, machine maintenance and employee turnover. On the other hand, the quality of raw materials will more significantly affect the quality of output. High job dissatisfaction leads to increased employee turnover, which in turn leads to reduced productivity of the firm. In conclusion therefore, machine should be well-maintained and employee turnover controlled in order to allow improved firm productivity in terms of quantity and quality of output. The management of the company should also work towards improving the job satisfaction of its employees in order to improve the quality and quantity of output hence the overall profitability of the firm.
These conclusions are drawn from extensive evidence on the effect of raw material quality, job satisfaction, machine maintenance and employee turnover on quantity and quality of output. This research concludes that raw material quality, job satisfaction, machine maintenance and employee turnover have a direct effect on the productivity of a relatively modest number of workers and firms. The study's findings also suggest that the firms may be failing to sufficiently implement the appropriate productivity improvement initiatives.

Workers indicate a greatly enhanced sense of recognition for work, which may in turn be linked to increased job commitment, reduced turnover, and increased productivity. Where it is relatively easy to find and train new employees quickly and at relatively little cost (i.e. where the labour market is loose), it is possible to sustain high levels of production despite having a low job satisfaction and high turnover rate. By contrast, where skills are relatively scarce, turnover and job dissatisfaction are likely to be problematic from a management point of view. This is especially true of situations in which you are losing staff to direct competitors. Some employee turnover positively benefits organisations. This happens whenever a poor performer is replaced by a more effective employee. Moderate levels of staff turnover can also help to reduce staff costs in organisations where raw materials and machines are not in good form. In such situations, it is straightforward to hold off filling recently created vacancies for some weeks.

The study further concludes that raw material quality, job satisfaction, machine maintenance and high employee turnover significantly affects the overall productivity of a firm. In fact, the study notes, that poor raw material quality, low job satisfaction, poor
machine maintenance and high employee turnover lowers the quality and quantity of output.

5.6. RECOMMENDATIONS
Despite this research findings revealing a mediating role for firm productivity are consistent with other researches (e.g., Batt, 2002), there remains the distinct possibility that reduced employee turnover and increased job satisfaction leads to high firm performance and efficiency. Second, the fact that my study was limited to firms in the manufacturing sector limits the generalizability of my findings to the other sectors of the economy. The study recommends that employers should provide decent wages, that will foster increased job satisfaction hence high productivity, reduced turnover, and increased efficiency.

The government should encourage firms to import new machines. This can be done by removing duty on any new machines being imported into the country. At the same time, it should encourage the use of local machines by facilitating the establishment of a structured machine manufacturing industry through government partnership.

The study further recommends proper machine maintenance, increased quality and quantity of raw materials and improved job satisfaction in order to increase the quality and quantity of output and hence the overall firm productivity.

5.7. SUGGESTIONS FOR FURTHER RESEARCH
Due to limited time, the setting of the research was limited to manufacturing firms. Other sectors (commercial and service sectors) were not studied to give comparative information on the factors that affect productivity. A good area of study and comparison
would be the service sector because of its extreme difference in the line of operation with manufacturing firms. It would thus be of interest if future research can be done to compare the service sector with manufacturing sector and ascertain whether the effect of raw material quality, job satisfaction, machine maintenance and high employee turnover on productivity can be generalized to other sectors.

There is also need to carry out a research to assess the influence of raw material quality, job satisfaction, machine maintenance and employee turnover on firm performance.

Future research should also be done to assess the effect of job satisfaction and employee turnover on the delivery of services in government departments.
REFERENCES


practices on turnover, productivity, and corporate financial performance. 

_Academy of Management Journal._


Krau E. (1981). Turnover analysis and prediction from a career developmental point of View. _Personnel Psychology._

Kyongo, J.K. (2006), _Job satisfaction in local Authorities_, Nairobi


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APPENDICES

APPENDIX I

LIST OF FIRMS

1. Unilever Kenya limited.
2. East African Breweries limited.
3. East African Cables limited.
4. Sameer Africa limited.
5. Unga Flour Millers Limited.
7. Brooke Side Dairies limited.
8. BAT Kenya limited.
11. Chandaria Industries Limited
12. Haco Industries Limited
13. Twiga Stationers Limited
14. Nairobi Bottlers Limited
15. Glaxo Smithkline Limited
18. Eveready East Africa Limited.
APPENDIX. II

LETTER TO RESPONDENTS

NGUI THOMAS KATUA
P.O. BOX 1146 – 90100.
MACHAKOS.

TO WHOM IT MAY CONCERN

RE: DATA COLLECTION

The attached questionnaire is designed to assist in gathering data for a research project on the factors that affect the productivity of manufacturing firms in Nairobi.

Your firm has been identified for data collection and I therefore kindly request you to facilitate the collection of the necessary data by answering the questions therein as precisely and factually as possible.

The information is purely for academic purposes and shall thus be treated with utmost confidentiality.

Yours faithfully,

THOMAS KATUA NGUI.
APPENDIX. III.

QUESTIONNAIRES

Questionnaire I: To be filled by the senior managers e.g. personnel/production managers and supervisors.

SECTION A

(1). Please tick (√) in the space provided your opinion on the following statements.

Use the scale:

1. Strongly agree.  2. Agree.  3. Disagree.  4. Strongly disagree

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>a). Employee turnover significantly affects productivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b). Quality of machines significantly affects productivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c). Raw material quality significantly affects productivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d). Employee turnover lowers the quantity of your firm’s output</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e). Employee turnover lowers the quality of your firm’s products</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f). Raw material quality affects the quantity of your firm’s products</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g). Raw material quality affects the quality of your firm’s products</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h). Quality of machines affects the quantity of your firm’s output</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i). Quality of machines affects the quality of your firm’s products</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j) Good and well paid employees increase productivity of a firm.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k). Job satisfaction increases the quality and quantity of output</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l). Job satisfaction significantly affects your firm’s productivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**SECTION B**

(2). Using the scale:  
1. Very significant  
2. Significant  
3. Less significant  
4. Not at all

a). Kindly rate the effect of the following variables on the quality of output.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>a). Employee turnover</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b). Maintenance of machines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c). Quality raw material</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d). Job satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b). Kindly rate the effect of the following variables on the quantity of output.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>a). Employee turnover</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b). Maintenance of machines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c). Quality raw material</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Job satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SECTION C**

(3). Give any other factors that affect productivity but have not been mentioned above.

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Thank you
Questionnaire II: To be filled by junior employees

SECTION A

1). To what extent do the following factors affect the productivity of a firm?

Use the scale:
1. Very significantly   2. Significantly
3. Less significantly   4. Not at all

<table>
<thead>
<tr>
<th>Factor</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee turnover</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of raw materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well-maintained machines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2). Briefly explain how each of the factors above affects the productivity of this company.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

3). State any other factors that affect the productivity of this company

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
4). How can we increase the productivity of this company? 

SECTION B

5). Give your opinion on each of the following statements. Use the scale:

1. Strongly agree.  2. Agree.  3. Disagree.  4. Strongly disagree

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee turnover reduces quality of output.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee turnover reduces quantity of output.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence of raw materials increases the quality of output.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence of raw materials increases the quantity of output.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good and well-maintained machines increase quality of output.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good and well-maintained machines increase quantity of output.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee job satisfaction increases the quality of output.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee job satisfaction increases the quantity of output.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION C

6). How can the quality of output be increased? 

7). How can the quantity of output be increased? 

Thank you
To: TO WHOM IT MAY CONCERN:

Dear Sir/Madam,

RE: RECOMMENDATION FOR NGUI THOMAS KATUA
REG. NO.
D53/CE/12272/04

This is to confirm that the above named is an MBA student undertaking Human Resource Option, in Business Administration Department, School of Business, Kenyatta University.

Mr. Ngui has successfully completed his coursework and is now embarking on his Research Work which is a requirement for the award of the Degree.

Any assistance accorded to him will be highly appreciated.

For more information about the student, please contact this office.

Thank you.

MS. FARIDA ABDUL
MBA COORDINATOR
APPENDIX V

LIST OF TABLES

Table I. Distribution of firms

<table>
<thead>
<tr>
<th>Category of firms</th>
<th>Total population</th>
<th>10% sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and beverage producers</td>
<td>67</td>
<td>7</td>
</tr>
<tr>
<td>Book and paper manufacturers</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td>Industrial and automobile producers</td>
<td>46</td>
<td>5</td>
</tr>
<tr>
<td>Medical equipment and drug producers</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Chemical substance manufacturers</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>183</strong></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

Source: Survey

Table II. Responses rate of return

<table>
<thead>
<tr>
<th>Population</th>
<th>Sample size</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Personnel/ production managers</td>
<td>20</td>
<td>13</td>
<td>75</td>
</tr>
<tr>
<td>2. Junior employees</td>
<td>60</td>
<td>42</td>
<td>70</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>57</strong></td>
<td><strong>71</strong></td>
</tr>
</tbody>
</table>

Source: Survey.
Table III. Mean scores for all the statements

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean scores</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>a). Employee turnover significantly affects productivity</td>
<td>1.055</td>
<td>67</td>
</tr>
<tr>
<td>b). Quality of machines significantly affects productivity</td>
<td>0.309</td>
<td>28</td>
</tr>
<tr>
<td>c). Raw material quality significantly affects productivity</td>
<td>0.382</td>
<td>21</td>
</tr>
<tr>
<td>d). Employee turnover lowers the quantity of the firm’s output</td>
<td>1.055</td>
<td>74</td>
</tr>
<tr>
<td>e). Employee turnover lowers the quality of the firm’s products</td>
<td>0.109</td>
<td>25</td>
</tr>
<tr>
<td>f). Raw material quality affects the quantity of the firm’s products</td>
<td>0.582</td>
<td>9</td>
</tr>
<tr>
<td>g). Raw material quality affects the quality of the firm’s products</td>
<td>0.127</td>
<td>56</td>
</tr>
<tr>
<td>h). Quality of machines affects the quantity of the firm’s output</td>
<td>0.535</td>
<td>31</td>
</tr>
<tr>
<td>i). Quality of machines affects the quality of the firm’s products</td>
<td>0.327</td>
<td>16</td>
</tr>
<tr>
<td>j). Good and well-paid employees increase the productivity of a firm</td>
<td>0.964</td>
<td>71</td>
</tr>
<tr>
<td>k). Employee job satisfaction increases the quality of output</td>
<td>0.876</td>
<td>60</td>
</tr>
<tr>
<td>l). Employee job satisfaction increases the quantity of output</td>
<td>0.798</td>
<td>52</td>
</tr>
</tbody>
</table>

Overall mean score = 0.544.

Source: Survey.

57
Table IV. Factors affecting the quality of output

<table>
<thead>
<tr>
<th>Factor</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job satisfaction</td>
<td>33</td>
<td>57</td>
</tr>
<tr>
<td>Employee turnover</td>
<td>31</td>
<td>55</td>
</tr>
<tr>
<td>Machine maintenance</td>
<td>18</td>
<td>31</td>
</tr>
<tr>
<td>Raw material quality</td>
<td>33</td>
<td>58</td>
</tr>
<tr>
<td>Others</td>
<td>15</td>
<td>27</td>
</tr>
</tbody>
</table>

Source: Survey

Figure II. Factors affecting the quality of output
Table V. Factors affecting the quantity of output

<table>
<thead>
<tr>
<th>Factor</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job satisfaction</td>
<td>35</td>
<td>61</td>
</tr>
<tr>
<td>Employee turnover</td>
<td>42</td>
<td>74</td>
</tr>
<tr>
<td>Machine maintenance</td>
<td>10</td>
<td>34</td>
</tr>
<tr>
<td>Raw material quality</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>Others</td>
<td>17</td>
<td>30</td>
</tr>
</tbody>
</table>

Source: Survey

Figure III. Factors affecting the quantity of output
Table VI. Factors affecting the productivity of a firm

<table>
<thead>
<tr>
<th>Factor</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job satisfaction</td>
<td>34</td>
<td>60</td>
</tr>
<tr>
<td>Employee turnover</td>
<td>38</td>
<td>67</td>
</tr>
<tr>
<td>Machine maintenance</td>
<td>16</td>
<td>28</td>
</tr>
<tr>
<td>Raw material quality</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>Others</td>
<td>11</td>
<td>19</td>
</tr>
</tbody>
</table>

Sources: Survey

Figure IV. Factors affecting the productivity of a firm
Table VII. Major effects of the factors on a firm

<table>
<thead>
<tr>
<th>Statement Number *</th>
<th>Frequency</th>
<th>%</th>
<th>Mean</th>
<th>SD</th>
<th>Coefficient of variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>38</td>
<td>67</td>
<td>0.691</td>
<td>0.309</td>
<td>44.7</td>
</tr>
<tr>
<td>B</td>
<td>16</td>
<td>28</td>
<td>0.291</td>
<td>0.709</td>
<td>243.6</td>
</tr>
<tr>
<td>C</td>
<td>12</td>
<td>21</td>
<td>0.218</td>
<td>0.782</td>
<td>358.7</td>
</tr>
<tr>
<td>D</td>
<td>41</td>
<td>74</td>
<td>0.745</td>
<td>0.255</td>
<td>34.2</td>
</tr>
<tr>
<td>E</td>
<td>14</td>
<td>25</td>
<td>0.255</td>
<td>0.745</td>
<td>292.2</td>
</tr>
<tr>
<td>F</td>
<td>5</td>
<td>9</td>
<td>0.091</td>
<td>0.909</td>
<td>998.9</td>
</tr>
<tr>
<td>G</td>
<td>31</td>
<td>56</td>
<td>0.564</td>
<td>0.436</td>
<td>77.3</td>
</tr>
<tr>
<td>H</td>
<td>17</td>
<td>31</td>
<td>0.309</td>
<td>0.691</td>
<td>223.6</td>
</tr>
<tr>
<td>I</td>
<td>9</td>
<td>16</td>
<td>0.164</td>
<td>0.836</td>
<td>509.8</td>
</tr>
<tr>
<td>J</td>
<td>39</td>
<td>71</td>
<td>0.709</td>
<td>0.291</td>
<td>41.0</td>
</tr>
<tr>
<td>K</td>
<td>34</td>
<td>60</td>
<td>0.601</td>
<td>0.301</td>
<td>43.7</td>
</tr>
<tr>
<td>L</td>
<td>30</td>
<td>52</td>
<td>0.52</td>
<td>0.421</td>
<td>72.4</td>
</tr>
</tbody>
</table>

Source: Survey

* For statement check appendix 6.
## APPENDIX VI

### RELIABILITY TEST COMPUTATION

<table>
<thead>
<tr>
<th>Sample A</th>
<th>Rank $R_A$</th>
<th>Sample B</th>
<th>Rank $R_B$</th>
<th>$D = R_A - R_B$</th>
<th>$D^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>1</td>
<td>24</td>
<td>3</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>5.5</td>
<td>10</td>
<td>6</td>
<td>-0.5</td>
<td>0.25</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>30</td>
<td>1</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>9</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>3</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
<td>19</td>
<td>4</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>5.5</td>
<td>11</td>
<td>5</td>
<td>0.5</td>
<td>0.25</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>6</td>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>26</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

\[ \sum 14.5 \]

Using Charles Spearman's rank correlation coefficient

\[ R_s = 1 - \frac{\sum D^2}{n(n^2 - 1)} \]

\[ = 1 - \frac{6(14.5)}{10(100-1)} \]

62
\[
= 1 - \frac{87}{990}
\]

\[= 1 - 0.08788\]

\[= 0.912\]

Correcting \( r_s \) with spearman brown correlation

Given as \( rw = \frac{n (r_s)}{1 + (n-1) r_s} \)

Where

\( rw = \) internal consistency reliability

\( r_s = \) correlation coefficient

\( n = \) number of paired items

\[rw = \frac{10 \times (0.912)}{1 + (10-1) 0.912}\]
\[ r_w = \frac{9.12}{1+9(0.912)} \]

\[ r_w = \frac{9.12}{9.21} \]

\[ = 0.9902 \]

The findings in researches from sample A and B are strongly related and are therefore reliable.