



# Factors Affecting Labour Productivity in Construction Industry

**Mohd Juber Rayeen, Dr. Gaurav Shukla**

Maharishi University of Information Technology, Lucknow

## Abstract

Labour productivity remains a critical concern in the construction industry, significantly influencing project cost, time, and quality outcomes. This study aims to evaluate the key factors affecting labour productivity in the building construction sector, particularly within the Indian context, where much of the work is manual and labour-intensive. The research identifies major productivity barriers such as unskilled labour, material unavailability, equipment shortages, absenteeism, and delayed payments. A structured questionnaire was administered to industry professionals, yielding 45 valid responses. Using SPSS software, frequency and percentage analyses were conducted, revealing that 68.9% of respondents believed unskilled labour highly affects productivity, while 64.4% identified material unavailability as a major issue. The study builds on existing literature and benchmarks findings against global studies, emphasizing the need for targeted interventions. Recommendations include establishing dedicated productivity improvement roles, upskilling the workforce, and implementing structured monitoring systems. The findings underline the importance of strategic labour management and provide a framework for construction firms to enhance operational efficiency, competitiveness, and overall project performance.

**Keywords:** Labour Productivity, Construction Industry, Productivity Factors, Productivity Improvement Strategies.

## 1. INTRODUCTION

Productivity is that the foremost mentioned topic among the construction industry. Productivity is that the relation of output to any or all or any or variety of the resources won't to show out that output. Resources comprise labour, capital, time, energy, material etc. Productivity interprets directly into value savings and profit.

$$\text{Productivity} = \text{output} / (\text{resource used})$$

Construction is labour oriented business. Most of the event laborers shift to cities square measure from poor families and square measure illiterate. Their lack of education and talent produce their selections very restricted. when they come back to large cities, they have to face numbers of problems due to the dearth of expertise and lack of ability.

There square measure quite twenty 5 million of construction workers in Republic of Asian nation. Performance of labour in building construction is littered with such loads of things and is often connected to the performance of it slow, value and Quality. Therefore, it is vital to evaluate factors touching labour productivity in building construction. Construction is that the world's largest and most tough business. Human resource today incorporates a strategic role for productivity increase of any organization, and this makes it superior among the commercial competition. With the effective and optimum uses of it, all the advantages provided by the productivity growth are going to be obtained. Construction could also be a key sector of the economic system for countries all around the world, as traditionally it took up a huge portion in nation's total employment and its important contribution to a nation's revenue as a whole. However, until today, construction industries square measure still facing sort of problems regarding the low productivity, poor safety and keep quality. Productivity is that the one in each of the foremost important issue that have an impression on overall performance of any little or medium or huge construction industry. There are unit sort of things that directly affects the productivity of labour, so it is vital for associate organization to visualize and establish those factors and take an appropriate action for rising the labour productivity. At the little level, if we tend to tend to improved productivity, ultimately it reduces or decreases the price of project and provides overall best performance of project. There square measure sort of activities involved among the construction industry. so the effective use and proper management regarding labour is improbably important in construction operations whereas not that those activities may not be achievable. Labor productivity is one in every of the smallest amount studied areas among the development trade. Productivity improvement succeeds high value production with minimum investment. Considering the very fact that profit margins square measure tiny on construction comes, value savings related to productivity square measure crucial. The chief obstacle to up labor productivity is mensuration labor productivity. Poor productivity of construction employees is one in every of the causes of value and time overruns in construction project. This paper focuses on improvement of labour productivity within the industry. It covers the development labour productivity definitions, aspects, factors moving and strategies to boost it. This study provides a pointer for necessary steps needed to boost construction labour productivity.

The productivity of labour particularly} necessary especially in developing countries, wherever most of the building construction work continues to be on manual basis. The implementation depends to varied extents on property demands at the worldwide, national, regional, local, company and individual level up the assembly potency is that the most difficult issue in each developed and developing countries.

### **1.1-Labour productivity problems-**

Construction needs in depth manual labour. Human performance and productivity are dependent on each other. Therefore, the foremost normally used live of productivity is that the constant contract bucks of latest construction work per work hour (Hendrickson 1998). A study by Teicholtz (2004) unconcealed that over forty years (1964-2003) the development trade lags compared to any or all alternative non-farm industries in developing and applying labor saving techniques and work instrumentality for labor.

**1.2-Factors affects labour productivity** A study terribly like our study was conducted in North American nation referred to as the “Productivity enhancements on Canadian province Major Construction comes.” among this, a study conducted within the uk was cited. The employees were asked to rank a general list of common issues on their construction website and additionally they were asked to estimate the respective).lost time per downside space (McTague 2002).

### Manpower Factors Affecting Labor Productivity

Table 1.1 presents the ranking of the various factors in the manpower group

Factors	Rank
Lack of experience	1
Absenteeism	2
Age	3
Misunderstanding among labours	4
Accidents	5
Personal Problem	6

### Resource Factors Affecting Labor Productivity

Table1. 2 presents the ranking for factors of the resource group

Factors	Rank
Lack of required construction material	1
Lack of required construction tools/equipment	2
Poor site condition	3
Increase in the price of the material	4

### 1.3 Defining Productivity

Many definitions of the word “productivity” exist. For the premise of this study the Merriam- Webster definition are going to be used. Merriam-Webster defines productivity because the quality or state of being productive. Labor productivity is usually measured as output per employee or output per labor-hour. Though there are endless definitions for productivity, all of them talk over with productivity as a comparison of input versus output. Productivity = Output/ Input. Hyperbolic productivity happens once either

- Output is constant, whereas input is reduced, and/or
- Input is constant, whereas either the number or quality of output has been hyperbolic or increased.

## 1.4 PROBLEM STATEMENT

Labor productivity is one among the smallest amount studied areas at intervals the development trade. Productivity sweetening reach high price production with minimum investment. During this study {we will/we'll/we ar going to} establish and analyse the factors that are poignant labour productivity in housing industry.

Performance of labour in building construction is laid low with such a big amount of factors and is sometimes joined to the performance of your time, price and Quality we'll counsel a hunt methodology within which we'll use SPSS software package for the applied mathematics analysis of things poignant labour productivity. For information assortment we'll use Relative Importance Index technique (RII).

## 1.5 OBJECTIVE

- To study the vital factors affecting labour productivity
- Analyze and calculate the vital of these factors poignant laobour productivity.
- To create correct tips, and vital recommendations to attain the utmost labour productivity in construction industry.

## 1.6 SCOPE OF THE STUDY

In housing industry, hyperbolic in labour productivity brings higher profit and chance for investment. Labour productivity drives economic process meaning we have a tendency to are ready to:-

- Produce a lot of or service with the assistance of restricted quantity of resource.
- Increased productivity leads to higher profit.
- For labour, enhanced productivity will results into higher wages and higher operating condition.

## 2. LITERATURE REVIEW

**DIVISION OF CONSTRUCTION MANAGEMENT AND INSTITUTE OF TECHNOLOGY, LUND UNIVERSITY, “Improvement of Labour Performance and Productivity in Uganda’s Building Industry by Henry Alinaitwe, 2008”**

The objective of this analysis was to search out the present state of efficiency of building craftsmen, the factors that have an effect on labour productivity and ways that of rising labour productivity. Activity sampling performed on the most important activities among building craftsmen shows that craftsmen use concerning forty % of obtainable time on productive activities and of this solely concerning twenty % is employed for creating buildings grow. It more shows that building craftsmen pay

concerning thirty three % of the time on non-value adding activities.

**JOURNAL OF CIVIL ENGINEERING AND MANAGEMENT, VOLUME- 14, 2008** “Effect of basic motivational factors on construction workforce productivity in turkey by Aynur Kazaz , Ekrem Manisali & Serdar Ulubeyli 2008”

Human resource these days contains a strategic role for productivity increase of any organization, and this makes it superior among the industrial competition. With the effective and optimum usage of it, all the benefits provided by the productivity growth is obtained. This usage is simply gettable by establishing clear and intelligible criteria for the factors moving labour. Hence, it's aimed throughout this analysis that the factors poignant construction labour productivity in Turkey ar determined, defined, and examined all. A survey was applied to eighty two companies to urge needed information. According bto results, the foremost effective factors cluster is structure factors.

**JOURNAL OF CIVIL ENGINEERING AND MANAGEMENT, 2009** “*Factors* affecting the performance of construction projects in the Gaza strip by Adnan Enshassi , Sherif Mohamed & Saleh Abushaban 2009” Construction comes set among the nation, Palestine suffer from many problems and complex issues. Consequently, the target of this paper is to identify the factors moving the performance of native construction projects; and to elicit perceptions of their relative importance. A comprehensive literature review was deployed to urge a gaggle of things believed to possess a control on project performance. a whole of 1 hundred and twenty questionnaires were distributed to several key groups of project participants; namely homeowners, consultants and contractors. The survey findings indicate that every one 3 groups agree that the foremost necessary factors moving project performance are: delays as a results of borders/roads closure leading to materials shortage; inconvenience of resources; low level of project leadership skills; increase of material prices; inconvenience of terribly previous and qualified personnel; and poor quality of accessible instrumentality and raw materials. supported these findings, the paper recommends that: 1) project homeowners got to work collaboratively with contractors and facilitate regular payments thus on beat delays, disputes and claims; 2) project participants have to be compelled to actively have their input among the strategy of decision- making; and 3) continuous coordination and relationship between project

participants are required through the project life cycle thus on resolve problems and develop project performance.

**INTERNATIONAL JOURNAL OF PROJECT MANAGEMENT, VOLUME 30, "Analysing factors affecting delays in Indian construction projects by Hemanta Doloi, Anil Sawhney, K.C. Iyer, Sameer Rentala 2012** Construction comes in Republic of country are experiencing widespread delays. Because of a dramatic shift among the potential and volume of the Indian construction sector over the last decade, the necessity of a scientific analysis of the reasons of delays and developing a clear understanding among the trade professionals are terribly crucial. employing a specific set of 45 attributes, this analysis initial legendary the key factors impacting delay in Indian construction industry thus established the affiliation between the specified attributes for developing prognostication models for evaluating the impacts of these factors on delay. A google sort and personal interviews have formed the thought of this analysis. method and regression modeling were accustomed examine the importance of the delay factors. From the method, most significant factors of construction delay were referred to as (1) lack of commitment; (2) inefficient worksite} management; (3) poor computing device coordination; (4) improper planning; (5) absence of clarity in project scope; (6) lack of communication; and (7) substandard contract. Regression model indicates slow decision from owner, poor labour productivity, architects' reluctance for modification and work on thanks to mistakes in construction are the reasons that have a control on the delay of the project significantly.

### **3. RESEARCH METHODOLOGY**

#### **Research Design:**

The study uses a quantitative research design aimed at understanding the impact of various labor-related factors on productivity. It employs descriptive research, which helps in summarizing and interpreting the characteristics of the collected data.

#### **2. Data Collection Method:**

- Primary data collection through structured questionnaires or surveys.
- Respondents were likely asked to rate the extent to which specific factors (like unskilled labor, absenteeism, delay in payment, etc.) affect productivity.

### 3. Sample Size:

- The sample consists of 45 valid responses (as indicated by "N Valid = 45" for each variable).
- No missing data was reported (Missing = 0), which ensures completeness of the dataset.

### 4. Sampling Technique:

Though not explicitly mentioned, a convenience or purposive sampling technique may have been used, common in such field studies when a targeted group (like construction labor managers, supervisors, etc.) is approached.

### 5. Tools for Data Analysis:

- SPSS (Statistical Package for the Social Sciences) was used for statistical analysis. It is a widely accepted tool for analyzing survey data.
- Descriptive statistics were applied, particularly:
  - Frequency distribution
  - Percentage analysis
  - Cumulative percentage
  - Pie charts for visual representation

### 6. Statistical Techniques Used:

**Frequency Analysis:** To show how often different responses occur for each factor affecting productivity.

**Percentages & Cumulative Percentages:** To understand the relative and overall distribution of responses.

**Graphical Representation:** Pie charts were used to visually summarize the categorical data, especially useful when displaying proportions.

## 4. DATA ANALYSIS

SPSS Statistics are software system package used for statistics analysis. SPSS is among the foremost wide used programs for statistics analysis in scientific discipline. It's additionally employed by market researchers, health researchers, survey firms, government, education researchers, selling organizations, and others. The initial SPSS manual has been represented in concert of "sociology's most influential books" for

permitting normal researchers to try and do their own statistical analysis .In addition to statistical analysis, knowledge management

**Frequency Statistics:-**

The Frequencies procedure provides statistics and graphical displays that are helpful for describing many sorts of variables. to make a table of frequencies (number of occurrences of given categories), by analyzing by suggests that of descriptive Statistics, the frequency within the needed variables would be calculated. Figure shows concerning choose the variables to be pictured within the frequency table by moving them from the left- to the right- hand box. SPSS provides the user further choices, as well as statistics, charts, and format.

**Statistics**

		unskilled	unavailability	shortage	absenteeism	delay
N	Valid	45	45	45	45	45
	Missing	0	0	0	0	0

Table 4.1 Frequency table of factors labour affecting productivity

**Unskilled**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Practically ignored	2	4.4	4.4	4.4
	Does not affects	3	6.7	6.7	11.1
	Moderately affects	9	20.0	20.0	31.1
	Highly affects	31	68.9	68.9	100.0
	Total	45	100.0	100.0	

Table 4.2 Frequency table of unskilled labour affecting productivity

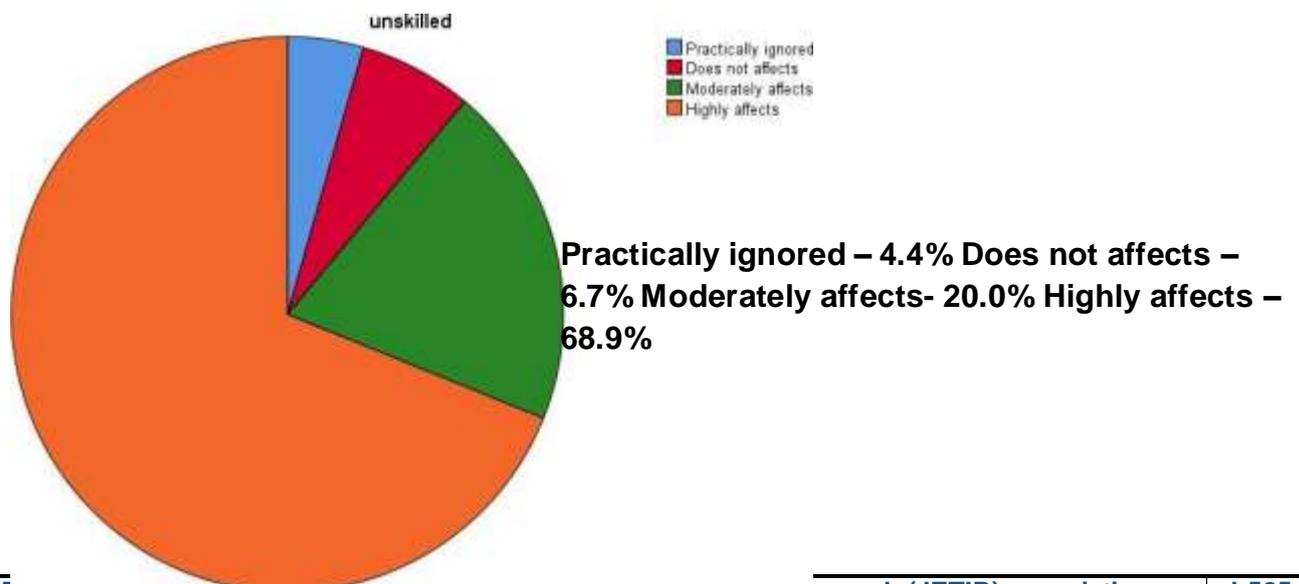


FIG 4.1 Pie Chart of unskilled labour affecting productivity

		Unavailability			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Practically ignored	2	4.4	4.4	4.4
	Does not affects	3	6.7	6.7	11.1
	Moderately affects	11	24.4	24.4	35.6
	Highly affects	29	64.4	64.4	100.0
	Total	45	100.0	100.0	

Table 4.3 Frequency table of unavailability of material affecting productivity

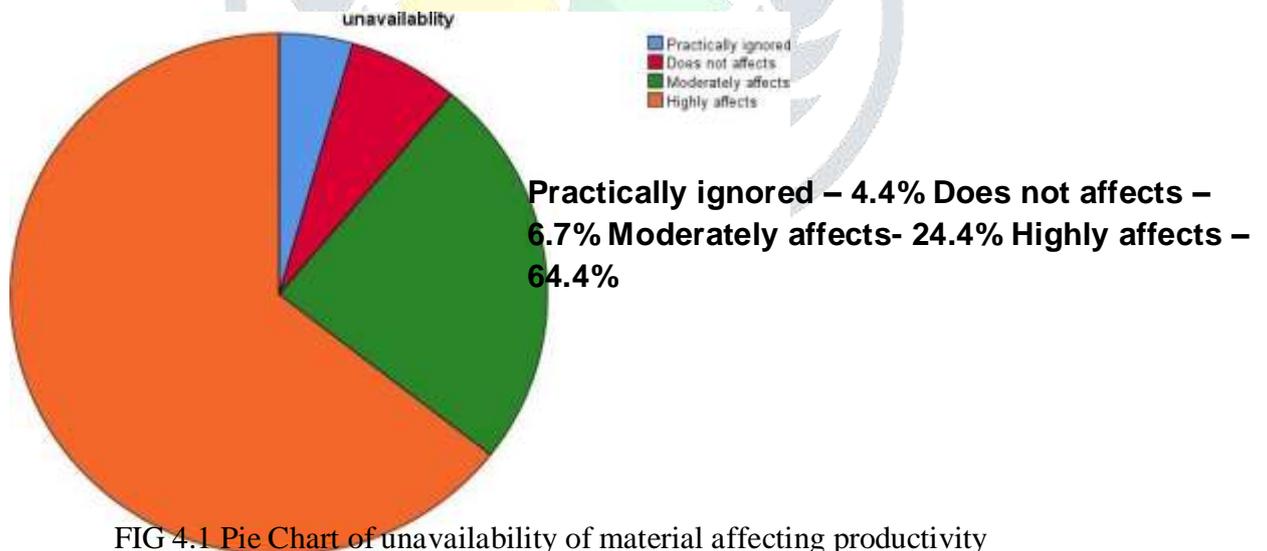


FIG 4.1 Pie Chart of unavailability of material affecting productivity

### 5. CONCLUSION

A form survey was conducted with construction industries specialists to hunt their opinion on this matter.

The conclusions are often made up of the study are summarized below:-

- There are several challenges face by construction industries however one among the foremost important issue is low labour productivity.
- The construction labour productivity influences the profit of the construction works. Critical issue that affects the labour productivity will facilitate to develop ways to scale back inefficient and to a lot of effectively manage construction labour forces. this may not solely improve the project performance of construction firms however additionally create them a lot of competitive and consequently increase the possibilities of survival among this extremely competitive sector..

- The gift study known 5 factors namely:-
  - a. Unskilled labour
  - b. inaccessibility of materials
  - c. shortage/breakdown of tools and equipment
  - d. frequent absence of labour
  - e. Delay in payment

## 6. RECOMMENDATIONS

### Unskilled Labour:-

- Skill level may well be a vital issue on worker's productivity as a results of high masterly labours are perform above low skilled worker throughout same amount of your time amount.
- Construction firms produce a position referred to as a foothold productivity improvement officer (CPIO), to create construction firms additional systematic, property, and responsible
- The CPIO would be concerned in productivity improvement designing and in watching activities additionally to coodinating and liaising with project stakeholders
- Construction company leaders ought to address these problems and develop efficient and effective productivity improvement programs to boost their ability to execute comes per the construction company's business arrange and project requirements
- Construction leaders got to style specific productivity improvement programs addressing project's locations and quality.
- The productivity improvement program ought to start with a stakeholder assessment of the causes of low productivity
- Regular joint reviews of the advance program are necessary to assess whether the productivity initiatives are credible

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