

## SHORT COMMUNICATION

### LABOUR PRODUCTIVITY CONSTRAINTS IN THE NIGERIAN CONSTRUCTION INDUSTRY

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#### ABSTRACT

The study examined the factors that affect production output of craftsmen involved in building projects. The objective is to ascertain productivity influence factors among operatives in indigenous constructing organizations in the North – Eastern states of Nigeria. Data were purposively obtained from 5 states of the zone namely, Adamawa, Taraba, Bauchi, Yobe and Gombe State. Data were collected from a total of 170 sampled craftsmen using simple random techniques. Data collected were analysed using simple percentages, mean, ranking scale and the chi – square. Results revealed that low wages ranked top amongst the factors considered to have impact on craftsmen productivity with a mean score of 3.86. It was closely followed by lack of materials with a mean score of 3.79 and unfriendly working atmosphere with mean 3.62. However, the result also showed that repeated works and inspection delays with mean scores of 1.21 and 2.31 respectively have little or no effect on the level of the productivity of the craftsmen. Finally, the result of the hypotheses tested at 0.05 level of significance showed that significant relationship exists between the factors that hinder productivity and the expected output of the craftsmen on site.

**KEYWORDS:** Craftsmen. Labour. Productivity. North – Eastern State.

#### INTRODUCTION

Construction operatives in Nigeria have over the years been subjected to a work environment which has not encouraged high level of productivity. Eldin and Egger (1990) noted that construction productivity has been declining steadily in spite of the rising costs and large labour intensive construction projects around the world. This declining productivity reflects on failure of the building industry to deliver projects timely with the obvious consequences of cost overrun.

According to Arditi and Mochtar (2000), the output of the construction industry constitutes about one – half of the gross capital and is 3- 8% of the Gross domestic product (GDP) in most countries. Similarly, Buchan *et al.*, (1993) states that labour cost represents a considerable proportion of the final cost of the building and is usually between 40 to 60 percent of the building cost. Therefore, labour productivity is adopted as an index for measuring productivity because labour is acknowledged as the most important factor of production since it is the factor that creates value and sets the general level of productivity.

The ability or efficiency of a worker is dependent on his capacity for work. This in turn depends on certain factors such as: site hygiene and sanitation, calorie and protein intake, age, education, temperature and humidity to mention but a few (Heap, 1998). These management deficiencies soon result in operative frustration and bring into focus the question of motivation. It is therefore essential for the workers to have confidence in their supervisors. If the workers observe an unfair, corrupt or poor site management, their morale, moderation and consequent productivity will be reduced (Price and Harris 1985).

This study therefore examined labour productivity and its inherent problems in the construction industry in the North-eastern states of Nigeria. The specific objectives are to identify the factors that affect labour productivity, to ascertain the level of the problems and their effect on the craftsmen output, and to suggest ways in which productivity output can be improved.

## METHODOLOGY

The North – Eastern geo - political zone of Nigeria consists of six states namely, Adamawa, Taraba, Yobe, Gombe, Bauchi and Borno States. For the purpose of this study, data were collected from five states of the zone. The targeted population was the craftsmen involved in construction works which include masons, carpenters and iron- benders. The sample size was obtained from ten indigenous construction sites located in the various state capitals. Two sites were sampled from each state. A total of 250 questionnaires were administered in equal proportion to craftsmen in the study area (i.e. 50 questionnaires administered in each state). A total of 170 questionnaires were retrieved back. This comprised of 57 carpenters, 62 masons and 51 iron benders. Structured questionnaire were issued in equal proportion to two construction sites each in the five state capitals. A total of 10 sites were surveyed.

Data were collected from the craftsmen on construction activities such as repeated work, lack of proper tools, interference between operatives, inspection delays, incessant cash flow, inadequate planning, low income level, lack of materials, and supervisors' delay among other factors. Data collected were analyzed using simple percentage, mean and the 4- point likert scale of strongly disagreed = 1, disagree = 2, agreed = 3 and strongly agreed = 4 to ascertain their responses on the list of possible constraints. The mean of the response values which is 2.50 was taken as the cut - off point such that statements with mean score 2.50 and above were regarded as those which the craftsmen agreed to implying a positive attitude while statements with mean score below 2.50 were regarded as less important constraints. The chi – square was used in testing the hypotheses at 0.05 level of significance and 30 degree of freedom (df).

## HYPOTHESES

Ho1. There is no significant relationship between labour productivity of craftsmen and unfriendly atmosphere, availability of materials and attractive remunerations.

Ho 2. There is significant relationship between labour productivity of craftsmen and unfriendly atmosphere, availability of materials and attractive remunerations.

## RESULTS AND DISCUSSION

Results from Table 1 shows that 36 respondents (or 21.2%) strongly agreed that absenteeism of a gang member constitute a hindrance to productivity experienced on construction sites while 58 respondents (or 34.1%) strongly disagreed to this fact. From the results of the mean (2.28) it can generally be said that the craftsmen disagreed to the fact that absenteeism affects labour output of gangs. Instruction and supervisors' incompetence has been classified as supervision delay. These problems have a mean score of 3.18 and 3.66 respectively implying a positive attitude towards low productivity. It was gathered that instruction and inspection delays are unavoidable to some extent; however, the time spent on each may vary depending on the complexity of the project and the skill/experience of the operative in the particular trade. Low wages is the most important hindrance to labour productivity as reflected from the responses of the craftsmen with a mean of 3.86 showing a positive attitude. About 160 respondents (or 94.1%) were unanimous in their responses concerning low wages. The study also gathered that News about wages paid in other firms often leaks out and once it does it builds resentment which adversely affects productivity of workers in firms where workers are paid low. Of the productivity problem identified, lack of materials ranked second with mean score of (3.79). 147 respondents (or 86.5%) strongly agreed that lack of materials is serious setback to productivity on construction sites (Table 2). It was equally gathered from the operatives that, inadequate planning is the major source of this problem, followed by excess paper work preceding requisition of materials. Only about 5 respondents (or 2.9%) of the population strongly disagreed that lack of materials is a detriment to achieving maximum productivity from craftsmen. 139 respondents (or 81.2%) of the respondents strongly agreed that unfriendly working condition with mean of (3.62) is the third most contributing factor to low productivity. Poor welfare facilities was noted as a main source of the problem as viewed by the respondents, the consequences results to workers spending unproductive time looking for places to relieve themselves. Similarly, lack of safety equipment, first aid facilities, and transportation to and from site and sometimes weather conditions as gathered are other contributory sources to this problem. However, 15 respondents (or 8.8%) strongly disagreed that unfriendly working condition has effect on productivity of labour as regard the construction industry. Repeat work was ranked the least of the productivity problem identified, as only (3.53%) of the respondents strongly agreed that it has effect on labour output (Table. 2). Reasons for this were gathered to be as a result of the skill/experience of the craftsmen, the extent of instruction given and near absence of design changes. Out of the 170 respondents

Table 1: Craftsmen Responses on Common site problems inhibiting productivity

Identified problems	Ranking order				Mean	Remarks
	SD	D	A	SA		
Absenteeism of a gang member causes delay	58	42	34	36	2.28	D
Instruction delays contribute to low production.	23	25	20	102	3.18	A
Supervisors' incompetence affects productivity	5	12	19	134	3.66	A
Lack of material is instrumental to productivity	5	2	16	147	3.79	A
Low wage level is a detriment to productivity	-	3	7	160	3.86	A
Unfriendly working atmosphere affects the output of craftsmen	15	4	12	139	3.62	A
Repeated work is beneficial to productivity of craftsmen	132	32	-	6	1.21	D
Lack of proper tools hampers labour output	52	58	48	12	1.94	D
Interferences between operatives causes difficulties among operatives	17	16	19	118	3.40	A
Changing crew members is a source of poor productivity	14	16	42	98	3.32	A
Inspection delays cause risks and uncertainty.	60	33	42	35	2.31	D

Source: Field Survey (2011). Where D = Disagreed, A = Agreed, SD=strongly disagreed and SA = strongly agreed.

only 12 respondents strongly agreed that lack of proper tools is a problem to productivity. From the craftsmen, it was gathered that tools such as: steel cutting and bending machines are usually unavailable on construction sites. Similarly, concrete had to be transported by labourers on head pan which is rather unproductive, so also is the absence of concrete vibrators in most sites, however, majority of the operatives 52(or 30.6%) strongly disagreed to the responds on lack of proper tools. Furthermore, the table shows that interference between operatives and changing of crew member with mean score 3.40 and 3.32 respectively has negative influence toward the attainment of maximum productivity.

Furthermore, the result of chi – square test carried out to determine the hypothesis shows that at 0.05 level of significance and 30 df, the calculated chi – square value 28.5 is less than the critical chi – square value 43.7729, therefore the null hypothesis that there is a significant relationship between labour productivity of craftsmen, conducive atmosphere, availability of materials and attractive remuneration is accept.

Table 2. Common sites problems inhibiting productivity in a typical working day responses from the craftsmen from the various states

Identified problems	Ranking order				Mean	Remarks
	SD	D	A	SA		
Absenteeism of a gang member causes delay	58	42	34	36	2.28	D
Instruction delays contribute to low production.	23	25	20	102	3.18	A
Supervisors' incompetence affects productivity	5	12	19	134	3.66	A
Lack of material is instrumental to productivity	5	2	16	147	3.79	A
Low wage level is a detriment to productivity	-	3	7	160	3.86	A
Unfriendly working atmosphere affects the output of craftsmen	15	4	12	139	3.62	A
Repeated work is beneficial to productivity of craftsmen	132	32	-	6	1.21	D
Lack of proper tools hampers labour output	52	58	48	12	1.94	D
Interferences between operatives causes difficulties among operatives	17	16	19	118	3.40	A
Changing crew members is a source of poor productivity	14	16	42	98	3.32	A
Inspection delays cause risks and uncertainty.	60	33	42	35	2.31	D

Source: Field Survey (2011). Where D = Disagreed, A = Agreed, SD=strongly disagreed and SA = strongly agreed.

## CONCLUSION

The study has shown that significant relationship exists between the factors that hinder productivity and the expected output of craftsmen. Among the several factors considered, low wages ranked highest with a mean score of 3.86. It was closely followed by lack of material with mean score 3.79 and unfriendly working atmosphere with mean 3.62. The major source of lack of materials was identified as lack of proper planning together with excess paper work before requisition of materials, similarly, lack of safety equipment, first aid facilities, and transportation to and from site and convenience facilities are also contributing factors to craftsmen unproductiveness. Furthermore, at 0.05 level of significance and 30 *df*, the critical value of chi – square was found to be 43.7729, while the calculated chi – square value was 28.5. Therefore, since the calculated chi – square value was less than the critical chi – square value, the null hypothesis that there is a significant relationship between labour productivity of craftsmen, conducive atmosphere, availability of materials and attractive remuneration was accepted.

## REFERENCES

Arditi, D., and Mochtar, K. (2000). 'Trends in productivity improvement in the US construction industry'. Construction Management and Economics, pp 15, 18-27.

Buchan, R. D., Fleming, F. W., and Kelly, J. R (1993). *Estimating for Builders and Quantity Surveyors*. Butterworth – Heinemann, Oxford.

Eldin, N.N., and Egger, S. (1990). “Productivity Improvement Tools: Camcorders” *Journal of Construction Engineering and Management*. ASCE, Vol. 116, No.1. pp 100 – 110

Heap, A.(1998). *Improving site productivity in the construction industry*. International Labour Office, Geneva.

Price, A.D., and Harris, F. C (1985). *Methods of measuring production times for construction work*. CIOB Technical Information Service No.49.

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