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Labour Productivity in Construction Industry in Nigeria: Case of Lagos and Port Harcourt, Southern Nigeria

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Abstract
The problem of labor productivity in construction industry in Nigeria has been an issue of concern to most contractors and professionals. This paper attempts to identify the factors that affect labor productivity by conducting a survey that relates to these problems encountered at construction sites. Eighteen (18) problems that could affect construction labor productivity were identified and a qualitative survey was conducted using questionnaires. One hundred and twenty (120) questionnaires were distributed out of which 104 were returned (87%). The problems were ranked in their answers in terms of 'very often', 'often', 'sometimes' , 'rarely' , or 'never'. The analysis of the survey was performed using the importance index. The values of the importance indices identified the involvement of non professionals, material shortages; variation in cost of materials, recruitment of supervisors, inclement weather, stoppage because of owner/landowners conflict, stoppage because of insolvency of subcontractor/suppliers, labor disruption, delay in material deliveries to site, disruption of power/water supply as the major factors affecting labor output. The recruitment of workers was identified as of little significance in the studied areas.
Keywords: Construction, Labour productivity,

1. Introduction

Labor productivity in the construction industry has become one of the most frequently discussed issues in general management. Construction is generally a labor-intensive industry and improving the productivity of labor constitutes a prime target. (Tran and Tookey, 2011). Improvement in the productivity of the construction industry has a positive impact on all other industries, as well as on the national economy (Duncan 2002).

Building and construction sector is one of the top five sectors used in measuring the National Gross Capital Formation (NGCF) and the Gross Domestic Products (GDP) of any country. Its effect on every other sector makes it a significant frontier for sustainable development (Mosaku et al., 2006). With the recent democratic government in Nigeria, the last few years have recorded a boom in construction activities Allaffrica.com (2010) and Oluwakiyesi, (2011). Therefore, there is an increase in public sector projects such as public housing schemes, road construction and rehabilitation (Isa et al 2013).

In spite of these construction activities in the country and relative impressive performance of the construction industry, the construction sector is still struggling with a lot of intrinsic challenges, ranging from inadequate technical and managerial know-how, insufficient financial, material and equipment capital base. (Ofori, 2001). The construction industry is perceived as a low productivity sector because of the adoption of low technology tools and the use of large number of unskilled workers. Ameh and Odusami, (2002) identified low wages, lack of materials and unfriendly working atmosphere as having key impact on productivity of craftsmen involved in in-situ concrete operation in single storey building projects in Nigeria. The construction productivity is measured on the economic value added per worker (Lim and Alum, 1995). However, the skill level in the construction industry is low, workers' wages often do not reach the minimum wage designated by law and workers are not given proper working and living conditions (Ogunlana et al, 1993).

Now that the industry is booming, with the attendant shortage of adequate manpower to cope with the work load, focus seems to be tilting towards training new men for the industry. But the productivity of the existing workers in the industry needs to be optimized and improved on to obtain best returns on investment in manpower.

2. Materials and Method

A random sampling of various construction sites in Port Harcourt and Lagos were adopted and their constructions sampled.

A qualitative survey of the overall level of construction productivity in their construction industries were conducted using questionnaires. To determine the factors that affect labor productivity in construction industry, one hundred and twenty (120) questionnaires were given to construction workers at different construction sites. There were 104 returns, giving a response rate of 86%. The construction workers were requested to rank their answers to the list of problems in term of 'very often' 'often', 'sometimes' , 'rarely' or

'never'. The importance index was therefore calculated on each tem using the formula.

$$Importance\ index = \frac{5_{n_1} + 4_{n_2} + 3_{n_3} + 2_{n_4} + n_5}{5(n_1 + n_2 + n_3 + n_4 + n_5)}$$

Importance index

Where n_1 = No of respondents who answered 'very often'
n_2 = No of respondents who answered 'often'
n_3 = No of respondents who answered 'sometimes'
n_4 = No of respondents who answered 'rarely'
n_5 = No of respondents who answered 'never'

Olomolaiye and Ogunlana (1988) recognized that the workers responses may not necessarily be their true perception of the situation as the workers' responses reflect their mood at the time of answering questions. This is regarded as one of the shortcomings of attitudinal surveys.

In analyzing the questionnaire returns, the survey classified the items into four categories.

2.1 Manpower

1. - involvement of non-professionals
2. - difficulty in recruitment of supervisors
3. - difficulty in recruitment of construction workers
4. - absenteeism
5. - labor disruptions

2.2 Management

6. - material shortages
7 - Delays in material deliveries to construction site
8. - disruption to power/water supplies
9. - stoppage because of disputes with owners/landowners
10. - stoppage because of insolvency of subcontractors/suppliers
11. - variation in cost of materials

2.3 Incentives

12. - transportation to site
13. - site refreshment
14. - money
15. - first Aid

2.4 Environment

16. Inclement weather
17. - health

3.0 Results and Discussion.

The result of the analysis is presented in Table 1. The analysis of the result was based on the value of the importance index of the variables. The importance indices identify the relative importance attached to the factors by the construction workers. The importance index also indicates that the ten most important issues that contribute mainly to low labor productivity in the construction industry are: involvement of non professionals, material shortages; variation in cost of materials, recruitment of supervisors, inclement weather, stoppage because of owner/landowners, stoppage because of insolvency of subcontractor/suppliers, labor disruption, delay in material deliveries to site, disruption of power/water supply.

The involvement of non professionals in the construction industry has the highest value (fig. 1) in the list with 51% of respondents accepting that this problem is very often encountered at construction industry as building contracts are awarded to non professionals who in turn sub-let the contract to a professional at a lower cost. The professionals, however tries to cut corners by using sub-standard materials in order to make profit. Shortage of materials at site is another serious management problem often encountered at the site. 49% of respondents recognized that the problem very often occurs at the site (fig. 2). There are also material shortage problems (importance index: 0.82, such materials as cement, steel reinforcement etc, and these can be of concern since their absence might cause disruption of work at site.

Variation in cost of materials (importance index 0.82) is also a problem in the construction industry. The cost of materials as at the time of contract award may vary in the course of the construction. This experience is very often encountered in a developing economy like Nigeria. The interaction between the forces of demand and supply of construction materials affects the prices of construction material. Difficulty in

recruitment of skilled personnel as supervisors has an importance index of 0.79. The problem often causes low labor productivity. The construction industry is not only losing experienced and skilled personnel to other sectors especially to banking and financial sector and Information Communication Technology (ICT) sector at also attracts less fresh graduate probably because of low remuneration. The other three items that contribute highly to low labor productivity in Nigeria are inclement weather, stoppage because of disputes with owner/land owners, stoppage because of insolvency of subcontractor/suppliers.

The cities of Port Harcourt and Lagos are within the coastal zone with high amount of rainfall, thus heavy rains in the wet season disrupts the activities on site. In these cities, lands are sold to many buyers by the land speculators. This very often creates dispute between the buyers and the land owners at the time of construction. Delays in material delivery to site (importance index: 0.55) are caused by untimely delivery to site due to traffic flow. The problem could also be as a result of shortage of storage space and also high rate of theft at construction site. These delays in deliveries have an adverse effect on labor productivity. The stoppages due to the insolvency of subcontractor/suppliers (importance index: 0.73) are of concern as shown in the survey result. Stop-work orders are normally issued in the case of fatal accidents on construction sites but death rarely occurs at construction sites. In other words, serious accidents seldom occur. Labor disruption is of significant concern on construction sites. In these two cities, recruitment of construction workers is never a problem as 95% of respondents accepted that such problems do not occur. Most of the incentive issues are of little concern to the respondents and they rarely create problem at site (fig 3). The importance indices for such problem fall below 0.50 as shown below:

- First aid (importance index: 0.49)
- Site refreshment (importance index: 0.43)
- Transportation (importance index: 0.44)
- Money (importance index: 0.42)

The provision of first aid at construction site will assist to reduce the delay on treatment in case of minor accident. Site refreshment, transportation and money are of little significance concern to the construction workers as shown on the survey result.

4.0 Conclusion

The result of the survey has shown that the most important issues that contribute to labor productivity in the construction industry are the involvement of non professionals and material shortages at construction sites. The non-professionals are involved in the construction industry because very often, contracts are awarded on the basis of political affiliations or patronage and relationship with the client in question. Shortage of construction materials and recruitment of untrained workers also constitutes a challenge in the construction industry. In the same vein, the shortage of manpower in the construction industry in Nigeria coiled alongside with the fresh graduate preference for other sectors such as banking, financial and information communication technology (ICT), contributes to the avoidance of the construction sector. In this light, positive measures are hereby required to address the situation. More also, the construction industry should embark on better-trained, skilled manpower, and more attractive incentives for both skilled and unskilled personnel.

Reference

Allaffrica.com (2010). Construction Players Reap Rewards of Strong Demand [online]. Available from http://allafrica.com/stories/201004220794.htm/ [accessed 1st May 2014].

Ameh, O.J., & Odusami, K.T. (2002). Factors affecting labor productivity in Nigerian Construction Industry: A case study of indigenous contracting organizations in Lagos. *The Quantity Surveyor*, *40*(3), 14-18.

Arditi, D and Mochtor, K. (1996): Productivity Importance in the construction industry. Construction management and economics.

Duncan, J. R. (2002). Innovation in the building sector: Trends and new technologies, IPENZ Convention, Wellington.

Isa R.B., Jimoh. R.A and Achuenu E. (2013). An overview of the contribution of construction sector to sustainable Development in Nigeria. Net Journal of Business management Vol.1 (1), pp. 1-6.

Lim, E. C. And Alum, J., (1995). Construction productivity issues encountered by contractors in Singapore. International Journal of project management 13.1; pp 51-58

Mosaku, T. O., Kehinde, J. O., and Kuroshi, P. A. (2006). Control of Building Practice for Sustainable Development in Nigeria: Matters Arising. Proceeding of the International Conference on The Built Environment; Innovation, Policy and Sustainable Development. Department of Architecture, Covenant University, Ota, Nigeria, 24-26 January, pp. 26 – 33.

Ofori, G. (2001). Challenges Facing Construction Industries in Southern Africa. Proceedings of Conference on Developing the Construction Industries of Southern Africa, Pretoria, Southern Africa.

Ogunlana, S. O. (1993). Motivating thinking construction employees Industrial Engineering Journal

Olomolaiye, P. O and Ogunlana, S. O, (1988). A survey of construction operative motivation on selected sites in Nigeria. Building and Environment 22.3; pp 179-185.

Oluwakiyesi, T. (2011). Construction Industry Report: A Haven of Opportunities *Vitiva Research* [online]. Available from t.oluwakiyesi@vetiva.com [Accessed 1st May 2014].

Tran, V and Tookey, J (2011) 'Labour productivity in the New Zealand construction industry: A thorough investigation', *Australasian Journal of Construction Economics and Building,* **11** (1) 41-60

Wahab, K. A. (1980): Manpower Requirements in a selected number of Housing projects in Nigeria. Building and Environment vol. 18 pp 14 – 41

Table 1: Factor Affecting Construction Labor Productivity.

Have you encountered the following problems at construction site?	**Very often**	**Often**	**Sometimes**	**Rarely**	**Never**	**Importance Index**	**R**
Involvement non professional	53(51%)	27 (26%)	14 (13%)	8(8%)	2(2%)	0.83	1
Materials shortage	51 (49%)	26 (25%)	13 (13%)	12(12%)	2	0.82	2
Variation in cost of materials	50 (48%)	25 (24%)	12 (12%)	15(14%)	2(2%)	0.80	3
Recruitment of supervisors	47 (45%)	26 (25%)	10 (10.0)	19(8%)	2(2%)	0.79	4
Inclement weather	42 (40%)	27 (26%)	10 (10%)	22(21%)	3(2%)	0.76	5
Stoppage of dispute with owner/landowners	38 (37%)	29(28%)	10 (10.0%)	23(22%)	4(4%)	0.74	6
Stoppage because of insolvency of sub-contractor/suppliers	38 (37%)	29 (28%)	8(8%)	20(19%)	9(9%)	0.73	7
Labor disruption	38(37%)	26 (25%)	9 (9%)	23(22%)	8(8%)	0.72	8
Delay in material deliveries	34(33%)	7/8 (17%)	8(8%)	32	12(12%)	0.66	9
Disruption of power/water supply	32 (31%)	17 (16%)	8(8%)	35	12	0.64	10
First aid	28 (27%)	15 (14%)	8(8%)	36	17	0.60	11
Stop work order because of accident	25 (24%)	14 (13.5%)	8(8%)	38	19	0.58	12
Site refreshment	28 (27%)	8 (7.7%)	3(2.9%)	41	24	0.55	13
Absenteeism	18 (17%)	4 (3.8%)	1(0.96%)	43	38	0.45	14
Transportation	15 (14%)	2 (1.9%)	2(1.9%)	56	29	0.44	15
Money	10%	3 (2.9%)	2(1.9%)	59	30(28%)	0.42	16
Health	0 (0%)	0 (0%)	2(1.9%)	68	32	0.35	17
Recruitment of construction workers	0 (0%)	1(0.9%)	1(0.96%)	3(29%)	99(95.2%)	0.22	18

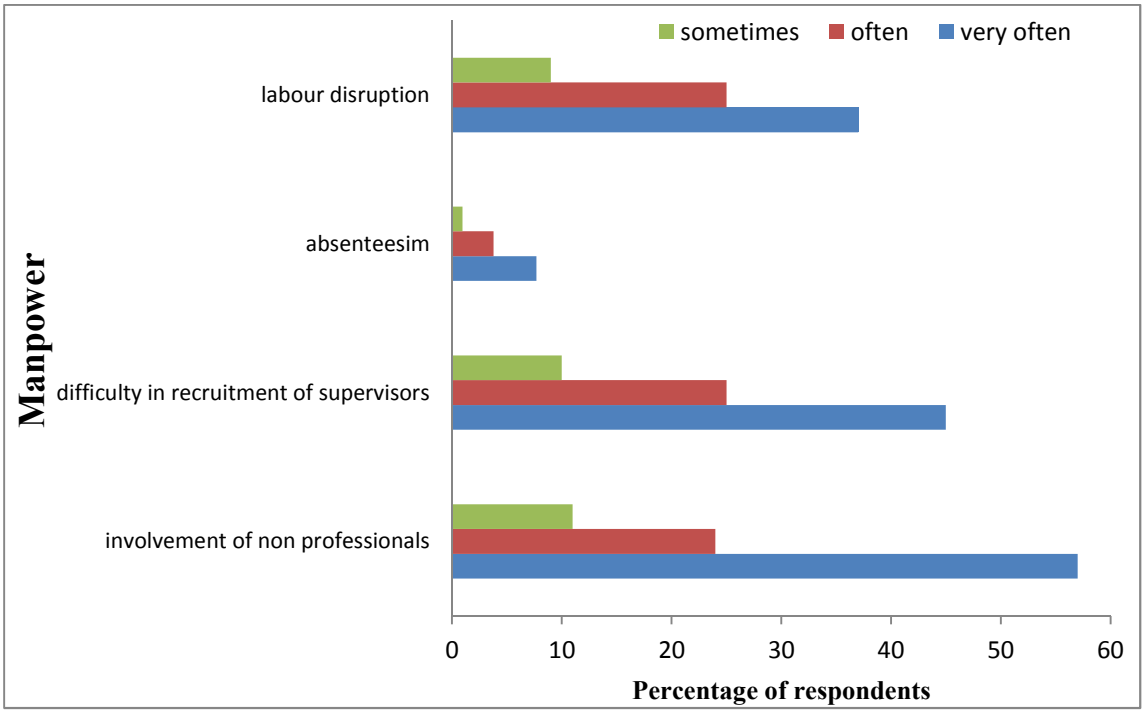

Fig 1. Manpower problems that affect Labour Output

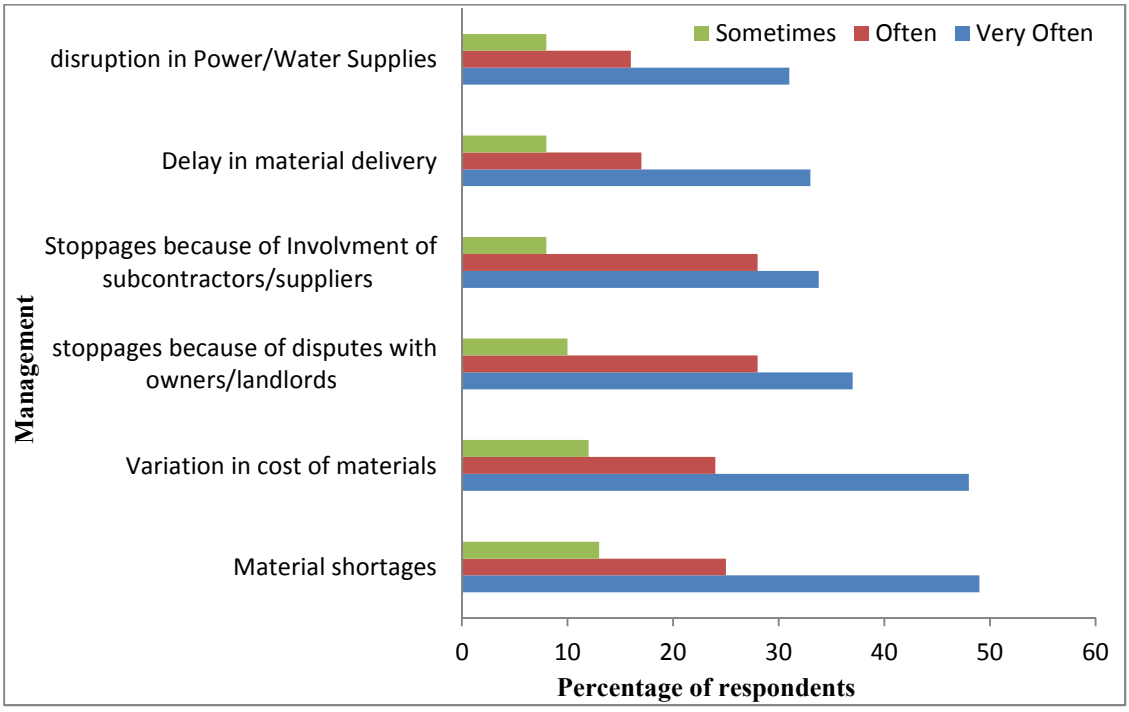

Fig 2. Management Problems that affects Labor Productivity.

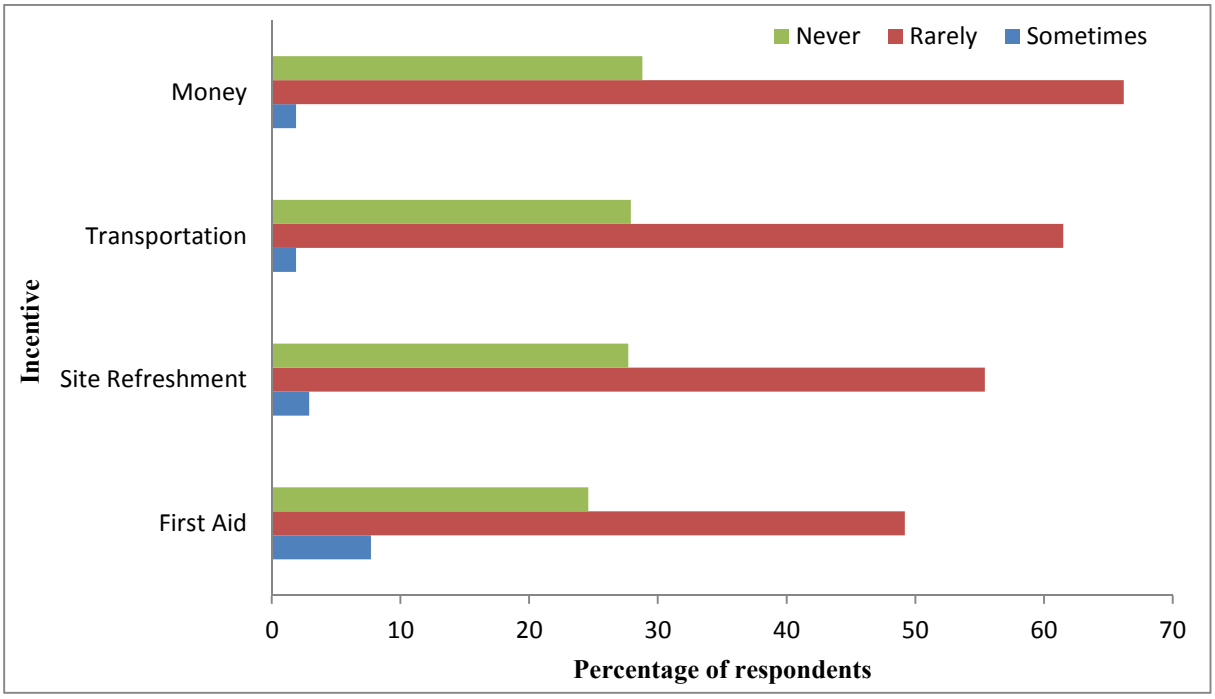

Fig 3. Incentive problems that affect labor Productivity.

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