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FACTORS AFFECTING LABOR PRODUCTIVITY: PERSPECTIVES OF CRAFT WORKERS

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Abstract

Labor productivity has a significant impact on time, cost, and quality of a construction project. Especially the competitive environment of the construction industry forces construction companies to increase their labor productivity values in order to keep their positions in the industry. In this respect, identification and evaluation of factors that affect the labor productivity becomes a crucial issue for industrial practitioners. In the academic literature, there are many studies that investigated these factors and their relationships with the labor productivity. In these studies, the factors were categorized under different groups and ranked according to their importance levels. However, in most of these studies, both the standard deviation among these factors under the same group and the mean value of each group were neglected. In addition, perspectives of managers were taken into account in general while those of craft workers were ignored. The aim of the current study is to re-evaluate the factors under the same groups by considering their standard deviations and mean values from the craft workers' point of view. For this purpose, after a detailed literature review, 37 factors were identified and categorized under four groups such as organizational, economical, physical, and socio-physiological factors. A questionnaire survey were then applied to craft workers to obtain the necessary data which was analyzed by means of the Relative Importance Index (RII) technique. The results revealed that, although the ranking of the factors remained the same, their importance levels have changed.

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1. Introduction

Construction projects are accepted as prestigious in many countries and the industry makes a significant contribution to the national economics [1]. For example, in developed countries, construction industry constitutes approximately 10% of the national income [2]. Besides its economic size, construction industry also provides

employment with rates of 7 % and 8 % in Europe and USA, respectively [1,3]. However, the economic contribution of construction industry is more significant in developing countries compared with developed ones [4].

Although, construction industry made an appreciable improvement dependently to the technological development [5], non-value adding activities still comprises 50 to 70% of work time in a typical work site [6]. Therefore, labor productivity becomes one of the most important factors that affect both time and cost performances of the construction projects [7].

In this study, it was aimed to introduce the factors affecting labor productivity in Turkish Construction Industry by considering craft workers' perspectives. For this purpose, 37 different factors were analyzed under 4 factor groups named as organizational, economical, physical and socio-psychological. In addition, the distribution of each factor within a group was examined by statistical analysis.

2. Literature Review

Construction industry is mostly defined as a labor intensive industry. Therefore, labor productivity became a crucial issue for the profitability of the construction projects [8]. Similarly, due to the industry's economic size, an increase in labor productivity will also make a significant contribution to the national income. Accordingly, examining the factors affecting labor productivity attracted the attention of many researchers and numerous researches were conducted. Actually, these factors are local. In other words, factors may vary from region to region, from project to project and even on the same project depending on different conditions [9]. Therefore, in the literature most of the studies were conducted in different countries.

In these studies, different perspectives of different project participants such as project managers, contractors and craft workers were considered. Although, the number and groups of factors differ in each study, data collection and ranking methods are considerably similar. In Table 1 some of these studies and their results are summarized.

As seen in Table 1 these studies were mostly conducted in undeveloped or developing countries. Except Jarkas and Radosavljevic [13], the other researchers investigated the factors by categorizing them under different factors groups. Similarly, Jarkas et. al. [10] analyzed demotivational factors under a simple factor group. RII was the dominating method used for ranking these factors in these studies.

The results of these studies proved that most influencing factors varies from region to region. For example, different two studies conducted in Kuwait and Qatar by the same researchers revealed different results. The most effective factor affecting labor productivity in Kuwait was found as "clarity of specifications" while in Qatar it was "skill of labor" [15, 16]. Similarly, "unavailability of material on time at the workplace", "payment delay", "competence of project manager", "rework", "lack of financial incentive scheme" and "labor experience and skill" factors were evaluated as the most influencing factors in India, Kuwait, Lithuania, Palestine, Qatar and Egypt respectively [8,10,11,12,13,14].

Besides factors, factors groups also varied from region to region in these studies. "Management factor group", "managerial factor group", "project related factor group" "labor group", "technological factor group" and "supervision factor group" were evaluated as most significant factor groups in Egypt, Palestine, Lithuania, Qatar, Kuwait and Indonesia, respectively [8,11,12,15,16,17]

Kazaz et al [18] investigated 37 factors categorized under four factors group by considering managers' perspectives in Turkey. The results revealed that organizational factors group and quality of site management was rated as the most effective factors group and factor, respectively. In this study, it was aimed to investigate these 37 factors by considering craft workers' perspective.

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