A Study of the Factors Affecting Productivity

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ABSTRACT

The aim of this study is to determine the factors affecting productivity. Productivity increase is an important indicator of the economy and the market value of the firms. Therefore, it is crucial for the business management to determine and control the factors affecting productivity. In the highly competitive and fast changing world of technology, policy-makers and managers consider productivity as a key element for success. There are various ways of increasing productivity depending on the conditions and culture of each organization. The most important factors that drive productivity are human resources and personnel.

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INTRODUCTION

The importance of productivity growth has been discussed by numerous studies. At the firm level productivity growth demonstrates that resources have been used efficiently and this situation causes decrease in the costs. A firm, therefore, can reduce the prices of its products while maintaining or increasing profit margins. At the national level, productivity is one of the main determinants of economic growth and progress. Productivity growth provides to decrease in rate of inflation and it also develops the competitiveness of domestic firms. Productivity growth, therefore, increases the wealth of a nation. [4]

What is labour productivity?:

Productivity can be defined in many ways. In construction, productivity is usually taken to mean labour productivity, that is, units of work placed or produced per man-hour. The inverse of labour productivity, man-hours per unit (unit rate), is also commonly used. Productivity is the ratio of output to all or some of the resources used to produce that output. Output can be homogenous or heterogeneous. Resources comprise: labour, capital, energy, raw materials, etc.

Productivity = Output
Labour cost

Human resources are the most dignified, important, and valuable organizational asset. Successful management of human resources is the key to economic, social, and cultural development. This requires the employment and ongoing training of committed and proficient human resources. Well-trained human resources can compensate for material losses by making the right decisions at the right time. In fact, they always create value and wealth for the organization and add to its capitals.

Definition of productivity:

Productivity is making the best use of resources, labor, and materials in a scientific way to reduce costs and satisfy the personnel, managers, and consumers. Human resources productivity, on the other hand, is the optimal use of human resources for achieving organizational goals at the lowest cost and shortest time. Productivity is like a culture whose goal is to make activities more systematic. It is an attempt to maximize profit from labor, land, capital, equipment, etc. to increase social well-being. This has always been a critical issue to experts in the areas of politics, management, and economy.
History of productivity:
The word productivity was first used by François Quesnay in 1766, and in 1883 Littré defined the term as “the faculty to produce”. In 1990, Earley defined productivity as the relationship between output and the means used to produce it.

Importance of productivity:
Today, productivity is a key factor in economic growth, but can also be regarded as a culture, a worldview, that can be a determinant in all the aspects of life and work. The most important determinant of a country’s per capita income, over the longer term, is the level of and growth in productivity.

Strategies for Increasing Productivity:
Given the many definitions of productivity, a single definition must be provided that corresponds to the specific conditions of an organization. Increased productivity requires such actions as sharing of benefits, restructuring the organization, and developing human resources. An important determinant of productivity is the current conditions and culture of organizations. This suggests that strategies for improving productivity differ for each organization. Some of these strategies are: training the personnel, paying attention to the personnel, optimal use of talents, motivating the personnel, and technology. These strategies must be carefully identified and prioritized with respect to the conditions of the organization and the need for improvement in any of these areas. For instance, in one organization waste reduction may be a priority, while another organization may need to pay attention to personnel and motivate them. Disregard to the conditions and priorities of an organization can produce negative effects.

Productivity must be measured based on certain indices and for certain periods. These indices show how successful the attempts for increasing productivity have been. An important issue in measuring productivity is to identify the assessment period which depends on such factors as access to information, the nature of production operations, and management goals. The results of measuring productivity can be used as a useful tool for long-term planning at the organizational level.

Personnel’s role in increasing productivity:
Experience has shown that the success of an organization lies primarily in its personnel. Therefore, farsighted organizations always underline the importance of improving the quality of their personnel, and such behaviors lead to reduction of waste, improvement of quality, and consequently increased productivity.

Promoting successful employees means that the management values their efforts. This encourages them to achieve more. An effective yet simple way of promoting the employees is to answer the following questions:

- Do they have the ability to perform the new tasks?
- Do they have the motivation for the new role?

Only those employees who are capable and motivated enough can increase the productivity of an organization. However, if someone is promoted without having the necessary qualifications, not only will it demotivate and dissatisfy more competent employees, but it will also lead to the feelings of insecurity and constant anxiety in the promoted person. These negative consequences reduce the level of productivity.

Some managers give priority to production needs over other the needs of the personnel, while others value human resources more than production. Both of these approaches are wrong. High productivity is achieved only when these groups receive equal attention. Valuing the efforts of the personnel and showing interest in their welfare, wishes, and needs will improve their performance and subsequently improve productivity.

Management’s role in increasing productivity:
The management can play an effective role in increasing productivity through certain plans and incentives, including rewards, employee empowerment, and a friendly and compassionate climate. All these strategies encourage the personnel to carry out their tasks with confidence and trust, which in turn increases their productivity.

Education’s role in increasing productivity:
One of the factors that significantly influence productivity is human resource training. New plans and technologies cannot be effectively employed without a trained workforce at all the levels of an organization. Some studies have reported a strong positive correlation between education and productivity. Even comparative studies that address economic growth in different countries have indicated that countries with more trained human resources have had higher economic growth and productivity.
Motivation’s role in increasing productivity:

Definitely money is not the only motivation for people, but considerably low wages can demotivate them. Therefore, financial rewards still serve as a strong incentive in organizations. Incentives can be used as a means for sharing an organization’s success and the resulting productivity with the employees. Nonetheless, the greatest motivation for employees must be the understanding that they are all a part of the organization and that they reap the benefits of its productivity and share in its failure. On the other hand, giving rewards to employees or sharing the results of the organization’s productivity with them must be done impartially, or else it will have a negative outcome. That is, the benefits of productivity must be impartially distributed among the managers and employees. Highly productive employees are much more important than the extra benefits that are paid to them. People expect that the rewards they receive correspond to their efforts. This makes them more committed to the organization. Otherwise, they will resist the unjust treatment of the management. They may not be found when they are needed, may not participate in meetings and discussions, and may avoid transferring information as a form of passive resistance, which will negatively affect the productivity of the organization.

The performance of employees must be evaluated to increase their motivation and satisfaction. Their achievements and unique skills must be valued and they must be subtly steered to further improve their performance. Constructive suggestions must replace excessive criticism and reprimand, which will increase their receptiveness, their level of activity, and consequently their productivity.

Technology’s role in increasing productivity:

Technological advancements have changed the way organizations work, and new communication, information processing, microelectronics, and genetic engineering technologies are dominating the workplace. Technology has two different aspects:
1. The external aspect as a facilitator of production with productivity;
2. The internal aspect as an entity that requires a skilled workforce and massive budgets for training the personnel.

Age, culture, growth, and human resources of an organization affect the adoption of technology. Heads of operation who participate in the design and implementation of processes play a significant role in this regard. Improved productivity is, in part, due to technological innovation. In the information age, information is a dominating source with the ability to be developed, compressed, replaced, transferred, disseminated, and shared.

Culture’s role in increasing productivity:

Today the role of culture in improving productivity is receiving much attention. The relationship between culture and productivity is not simple and straightforward. Researchers believe that productivity increases when the organizational culture is shaped around the priorities and goals of the organization. Studies show that culture is a key factor in improvement of productivity and plays a critical role in the success or failure of the organization.

Job satisfaction and productivity:

It is obvious that satisfaction of employees with their job is positively associated with productivity. To explain this relationship, we must not the role of human resources as a massive and valuable capital in productivity. Human beings are pivotal to productivity. Regardless of their missions, all organizations must heavily invest on training human resources which will, in the long run, lead to sustainable productivity. Therefore, the best strategy is to constantly choose the right person for a job, which guarantees both job satisfaction and productivity.

In the literature, there are many studies on the relationship between productivity and other variables. Positive relationship is found between productivity and ownership but relationship that both size and independence of the management board is found to be insignificant (Adewuyi and Olowookere, 2009). Another, it has been indicated that, increasing productivity in the public enterprises grows, nonetheless increasing of profitability comes true delayed. [13]. The main point is that profitability does not mean productivity at all times and vice versa. [8]. Fernandes [6] and Yaşar et al. [12] investigated effects of export behavior on productivity.

Social capital and productivity:

One of the benefits of social capital is increasing productivity in the human resources of an organization. In a business organization social capital is an important source of productivity. To get things done, workers and professionals need to mobilize others’ support and advice, well beyond the hierarchical structure of the firm. Although hierarchy is a powerful way of mobilizing others, two features make its sole use potentially ineffective. First, no matter how powerful bosses are and hierarchical the organization might be, subordinates might affect the final outcome in different ways, by delaying execution, partially opposing decisions, and displaying
defensive or opportunistic behavior. Second, as the nature of jobs evolves over time making team-work necessary, the sole reliance on a command and control structure does not guarantee success.

**Results:**

Further the factors from Table 1 were transposed into a sixty-one survey questions and circulated to the purposefully selected key industry players – engineers, foremen and workmen from the construction industry. Sampling was aimed to have a comprehensive coverage of client, contractors, consultants and subcontractors.

![Image: Major Categories of factors affecting productivity](image)

**Fig. 1: Major Categories of factors affecting productivity**

**Table 1: Comprehensive List of Factors affecting productivity**

<table>
<thead>
<tr>
<th>Environmental Factors</th>
<th>Group Factors</th>
<th>Individual Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>labour market characteristics</td>
<td>group structure or composition</td>
<td>level of academic / technical education / past training</td>
</tr>
<tr>
<td>economic situation</td>
<td>individual skills within the group</td>
<td>past experience / age</td>
</tr>
<tr>
<td>safety and job security</td>
<td>nature of work / assignment</td>
<td>overall competence and skills</td>
</tr>
<tr>
<td>minimum wages, salary payments</td>
<td>cultural differences</td>
<td>motivation and morale</td>
</tr>
<tr>
<td>use of technology / level of mechanization</td>
<td>language barriers</td>
<td>individual culture / attitude</td>
</tr>
<tr>
<td>climate and weather conditions</td>
<td>frequency of changes</td>
<td>absenteeism</td>
</tr>
<tr>
<td>client requirements / project specific requirements</td>
<td></td>
<td>overall job satisfaction</td>
</tr>
<tr>
<td>site layout</td>
<td></td>
<td>overall communal feeling / belongingness</td>
</tr>
<tr>
<td>political situation</td>
<td></td>
<td>overall appreciation</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Organizational Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>work timings / working hours</td>
</tr>
<tr>
<td>discipline / hierarchy order</td>
</tr>
<tr>
<td>policies and procedures, method statements</td>
</tr>
<tr>
<td>management involvement, accountability, transparency</td>
</tr>
<tr>
<td>availability of materials / tools and equipment</td>
</tr>
<tr>
<td>construction work complexity</td>
</tr>
<tr>
<td>interruptions of work</td>
</tr>
<tr>
<td>competencies of supervisors</td>
</tr>
<tr>
<td>leadership skills</td>
</tr>
<tr>
<td>systematic delegation</td>
</tr>
<tr>
<td>level of communication</td>
</tr>
<tr>
<td>brand name of company</td>
</tr>
</tbody>
</table>

**Table 2: Possible Factors Affecting Labor Productivity**

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Factors Affecting Labor Productivity at Building Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Accidents</td>
</tr>
<tr>
<td>2</td>
<td>Construction method</td>
</tr>
<tr>
<td>3</td>
<td>Drawings and specifications alternated during execution</td>
</tr>
<tr>
<td>4</td>
<td>Government regulation</td>
</tr>
<tr>
<td>5</td>
<td>High quality of required work</td>
</tr>
<tr>
<td>6</td>
<td>Increasing number of laborers</td>
</tr>
<tr>
<td>7</td>
<td>Inefficiency of equipment</td>
</tr>
<tr>
<td>8</td>
<td>Inspection delay</td>
</tr>
<tr>
<td>9</td>
<td>Insufficient transportation mean</td>
</tr>
<tr>
<td>10</td>
<td>Insufficient lighting</td>
</tr>
<tr>
<td>11</td>
<td>Labor absenteeism</td>
</tr>
</tbody>
</table>
12. Labor disloyalty
13. Lack of competition
14. Lack of financial motivation system
15. Lack of labor experience
16. Lack of periodic meeting with labor
17. Labor personal problems
18. Lack of place eating and relaxation
19. Lack of training sessions
20. Low quality of raw materials
21. Material shortage
22. Misunderstanding among laborers
23. Misunderstanding between laborers and superintendents
24. Misuse of time schedule
25. Payment delays
26. Rework
27. Supervisors’ absenteeism
28. Tool and equipment shortages
29. Type of activities in the project
30. Unsuitability of materials storage location
31. Violation of safety precautions
32. Weather change
33. Working at high places
34. Working overtime

Table 2. Shows possible factors affecting labor productivity in building construction collected from past study and literature review. It does not take into consideration any significant value, they are arranged in alphabetic order.

Conclusion:
Management of productivity requires not only a strong will, but also the operational mechanisms that must be designed and employed. Before so doing, a close examination of the current productivity of the organization allows for designing such mechanisms in accordance with the conditions of the organization. Developing productivity structures, human resources, and R&D systems as well as establishing performance management are useful strategies for increasing productivity.

In today’s world, the construction industry is rated as one of the key industries. It helps in developing and achieving the goal of society. Study and knowledge of construction productivity are very important because they cause losses to the governing agencies and also influence the economics of the construction industry. Prior knowledge of labor productivity during construction can save money and time. Investments for these projects are very high and because of the complexity in construction, various factors can highly affect overall productivity, thus the project can end up adding even more time and money in order to be completed. This research is intended to identify the causes of probable factors affecting labor productivity in building construction. This study investigates all possible factors through a structured questionnaire administered all over the USA. The survey results are subjected to analysis, and the ranking of factors is calculated using the Relative Important Index. The basic ideas of the research is to study various factors affecting labor productivity on construction.

Talented and highly productive employees must be rewarded and the weaknesses of less productive employees must be identified and improved. Moreover, managers must be selected using appropriate criteria. Finally, increasing productivity requires careful, extensive, consistent, and comprehensive planning.

REFERENCES