

Identification and Prioritization of the Driving Factors of Labor Productivity in the Melli Bank: Iranian Scenario

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Abstract

Purpose - Labor productivity is extremely important to the profitability and competitive advantage of organizations that provide services to customers, such as banks. This study investigates the factors driving labor productivity in Iran's Melli Bank.

Research design, data, methodology - Five managerial, psychosocial, cultural, and individual factors are identified and their relative importance for labor productivity prioritized using AHP. The required data are then collected through a questionnaire designed for a pairwise comparison of the driving factors of labor productivity and their subcategories.

Results - The study outcomes reveal that the managerial and individual factors are the most important. Specifically, the most important factors in increasing labor productivity in the branches of Melli Bank are having a competent supervisor, promotion opportunities, fair working conditions, conscientiousness, the right tools, and a correspondence between skills and work.

Conclusions - Implementing AHP using Expert Choice software revealed that, among the driving factors of labor productivity (i.e., managerial, psychosocial, cultural, environmental, and personal), managerial factors were considered the most important by the respondents.

Keywords : Labor Productivity, Melli Bank, Analytical Hierarchy Process (AHP) .

JEL Classifications : P41, O32, O31.

1. Introduction

Productivity is now regarded as a path to economic development of countries, competitive power of companies, and welfare of nations. Thus, productivity has received increasing attention as a strategic concept. Productivity is a product of intelligence; hence, the more the contribution of thought, intellection, reflection, and prudence, the more will be productivity. Intelligent use of resources in achieving better results is rooted in human nature, and lack of resources is a factor that entails human beings to take productivity into consideration (Morsali, 2005).

Limited energy resources and efficient workforce on the one hand and intense competition between different countries on the other have preoccupied many thinkers for decades. Technology is one of the most important ways of controlling over resources, and expertise is the prerequisite for increased quality and productivity.

Addressing productivity in banks is imperative for economic development. Due to intense competition, banks must try to get the best output (profit, employee satisfaction, customer satisfaction, etc.) from input resources (assets, capital, workforce, etc.). This is feasible only with careful management and planning. Scientific measurement and quantification of the efficiency of a service system's activities is essential in planning for and estimating development in these systems.

Iran, with such important assets as workforce, natural resources, and large investments in raw materials, machinery, and equipment, must come to realize that export of natural resources and raw materials such as oil cannot be a dependable source of national income. There is no choice but to maximize efficiency in exploitation of resources similar to other developed or developing countries; otherwise, Iran will fall behind from international competitions and a day will come when even exporting natural and raw materials will not be sufficient for meeting the basic needs of the country's population (Arab-Zanjani, 2009).

Productivity is a comprehensive concept which is related to how effectively input resources are transformed into value for customers (Grönroos & Ojasalo, 2004). It is also related to efficient utilization of resources in the production process. Productivity is a measure of productive efficiency calculated as the ratio of what is produced to what is required to produce it (Amini, 2004). Today the economic boundaries are blurred and competition in the global scene has increased. Efforts for improving productivity are at the core of this competition.

Improving productivity can lead to progress and development, and

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many countries have made huge investments for promoting productivity and its measurement techniques. According to Peter Drucker, service-sector productivity is the determinant of win or loss in the war of competition (Moghadas-Nikje, 2006). The banking industry is the backbone of any country's economy and examining its performance is of utmost importance. Thus, productivity in banks as service organizations is essential and the first and most important step in improving labor productivity is to identify its driving factors (Morsali, 2005).

Many studies have been carried out on the concepts related to productivity, but labor productivity in Melli Bank has not been scientifically examined. Especially, using a model for quantitative measurement of productivity is unique to the present research which will finally lead to a motivation model for improving productivity in Melli Bank. Moreover, identifying the driving factors of labor productivity can result in optimal utilization of human resources and increased quality of production.

2. Productivity

The earliest usage of the word productivity was by Quesnay (1766) in the *Journal de l'Agriculture* more than two centuries ago. 1776, Adam Smith, the founder of the science of economy, introduced productivity as a factor for increasing profit. Later classical economists discussed productivity in terms of physical and mental quality, skill, or physical strength of workers. However, since the 19th century different definitions of productivity have been proposed (Valizadeh Zonouz, 2005), and the most widely-recognized definitions of this concept are provided in Table 1.

<Table 1> Evolution of the definitions of productivity

Definition	Reference
Faculty to produce	(Littré, 1883)
Relationship between output and the means employed to produce this output	Early 1900s
The quotient obtained by dividing output by one of the factors of production	OEEC (1950)
A ratio of output to input	Fabricant (1962)
Functional definitions for partial, total factor, and total productivity	Kendrick & Creamer (1979)
Total productivity: the ratio of tangible output to tangible input	Sumanth (1979)
Sum of output to input ratios	Siegel (1961)
The ratio of units of output to units of input	Chew (1988)
The ratio of actual output to expected resources used	Sink & Tuttle (1989)
The ratio of value added to input of production factors	Aspén et al. (1999)

Source: Journal of Bank Saderat (2001)

2.1. Driving Factors of Labor Productivity

2.1.1. Managerial and educational factors

Education in the most evident instance of human investment and plays the main role in productivity and economic growth. For an organization or institution to have specialized personnel, there is a need for investing on training them and the role of the management in this process is very important. Zare (2000) has shown that there is a strong positive relationship between training and productivity.

2.1.2. Environmental factors and technology

During the past few decades production technologies for many products and services have undergone drastic changes. Technological advancements are one of the most important factors in changing the importance of human resource management for organizations. Due to these drastic changes, management experts believe that the most important challenges in the future are managing human resource and training employees to adapt them to new technologies.

2.1.3. Cultural factors and cooperation

Cooperation not only contributes to the development of an organization, but it also has a profound cultural effect. During the process of change, the active involvement of all employees for creating a climate that fosters productivity is very essential. A committed employee is highly valuable for an organization. They can be effective in increasing production and productivity through timely performance of task and their sense of responsibility (Ahadinia, 2006). Rad and colleagues (cited in Nasrollahpour, 2005) argue that cooperation is the key to productivity. Also cooperation theory indicates that cooperation and productivity are correlated. Actions that focus on cooperation and communication allow employees to work more efficiently and successfully which will lead to innovation and creativity in the employees.

2.1.4. Individual and motivational factors

Needs must be identified and satisfied to create motivation. One of the main challenges of an organization is to create balance between its general objectives and the individual needs of the employees. Therefore, motivation is the result of the interaction between the individual and the situation they are in. Motivation is an inner state that energizes, activates or moves, and that directs or channels behavior toward goals (Berelson & Steiner, 1964). Certainly motivation is the strongest factor in productivity; an inner tendency and zeal to achieve success and peace by performing a specific task.

2.1.5. Social and psychological factors (organizational culture)

Organizational culture affects all the aspects of an organization, the responsibilities of the management, and the way employees are managed and trained. Organizational culture stems from the shared beliefs and values that influence the behavior of organizational members (Schermerhorn et al., 2005). Kotter and Heskett (1992) showed that culture is the key to superior performance and that it

plays a crucial role in the success or failure of organizations. In organizations with strong culture, shared values and beliefs create an environment where people feel commitment toward each other and toward their missions and this commitment can increase productivity. Therefore, organizational culture management is a necessity for the high-ranking managers.

3. Review of Literature

Tavakoli et al. (2000) measured and analyzed productivity factors in Isfahan industries. They showed that the highest productivity belongs to mineral industry and basic metal industries. Productivity in food, mineral, and metal industries experienced significant growth. Value added and productivity in the textile industry was lower than average. Chemical industries also had low value added and negative productivity.

Bahramian (2003) carried out a research on productivity and its effect on banks. She argued that productivity is to maximize output from input resources (manpower, skills, capital, technology, equipment, etc.), and a successful organization is one that identifies the driving factors of productivity and makes systematic planning to improve its performance.

Sokuni (2006) examined the relationship between organizational culture and labor productivity in government agencies and concluded that there are significant relationships between most the components of organizational culture and productivity. He found that gender, education, experience, and age affected these relationships.

Amirzadeh (2007) studied organizational structure and labor productivity in public organizations of Qazvin Province. He found that the components of organizational structure-i.e. complexity; formalization, and centralization-are negatively associated with labor productivity.

Tavari et al. (2008) applied MCDM to identification and prioritization of the driving factors of labor productivity in a case study on a jeans manufacturing company in Yazd Province. The data from questionnaires were analyzed with ELECTRE, TOPSIS, SAW, and AHP. Finally, managerial factors were identified as the most important factors and personal, cultural, psychosocial, and environmental factors respectively assumed the other ranks.

4. Methodology

The present research is descriptive-survey. Convenience sampling was used considering the limited population.

4.1. Population and sample

The population of the research consisted of all the managers and assistants of the branches of Melli Bank in Iran, Tehran city who were working in the banks during the year 2011. Interviews and questionnaires were used to identify the components of labor

productivity and to collect data which were compared, analyzed, and used for developing a causal model. This survey could also measure the attitudes and orientations of the population (Babi, 2002).

4.2. Data analysis

Analytic Hierarchy Process (AHP) was used in this research as a multi-criteria decision making method. This technique is the most efficient one in hierarchical analysis and it was developed by Thomas L. Saaty in the 1970s. AHP is based on pairwise comparisons and allows managers to examine different scenarios (Ghodsipour, 2009). The purpose of AHP is to create a hierarchy of complex problems and classify it into levels from general to specific.

First, the problem should be modeled as a hierarchy that consists of goals, criteria, and sub-criteria. Once the hierarchy is created, the participants analyze it through a series of pairwise comparisons. Then the judgments are examined for consistency and those with inconsistency rates higher than 0.1 are given back to participants to be reevaluated. Finally, a final decision is made based on the results. Expert Choice 11 was used to rank the criteria and to determine their priorities.

4.3. Instruments

The required data was collected using a researcher-made questionnaire. It was designed in such a way as to provide pairwise comparisons of the driving factors of labor productivity in the branches of Melli Bank in Tehran city. It also contains four demographic items regarding the gender, education, post, and experience of the respondents. The questionnaires were distributed among the managers, assistants, and experts of all the branches of Melli Bank. They were informed about the purpose of the research and the questionnaire, and they were instructed to complete them in two days. Finally, 23 questionnaires were used in analytic hierarchy process.

4.4. Procedure for comparing the criteria of productivity

Several interviews were conducted with the professors, experts, and bank managers of Tehran city to identify the driving factors of labor productivity. The results of these interviews and a review of the literature led to identification of 19 factors in 5 categories: (1) managerial, (2) psychosocial, (3) cultural, (4) environmental, and (5) individual. After identifying these factors, each of the criteria and sub-criteria was examined using pairwise comparison tables and the resulting data were prioritized accordingly. A five-point scale was used that measured the preference of each criterion with respect to other criteria.

<Table 2> The numerical value of the preferences

Preferences	Numerical Value
Absolute Importance	5
Very Strong Importance	4
Strong Importance	3
Weak Importance	2
Equal Importance	1

<Table 3> Random index

N	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.51

Source: Mehregan (2004)

4.5. The procedure for calculating the consistency index

The weight coefficients of the ranking criteria and the decision sub-criteria are calculated using the right eigenvector, which is calculated from the maximum absolute eigenvalue ($\lambda_{max,1,2}$). λ_{max} can be estimated from the following steps:

1. Estimating $\lambda_{max}W$

$$\begin{bmatrix} 1 & 3.55 & 2.72 & 2.8 & 1.92 \\ 0.28 & 1 & 1.1 & 1.1 & 1 \\ 0.37 & 0.91 & 1 & 1.2 & 1 \\ 0.36 & 0.91 & 0.83 & 1 & 1.22 \\ 0.52 & 1 & 1 & 0.82 & 1 \end{bmatrix} \times \begin{bmatrix} 0.407 \\ 0.169 \\ 0.156 \\ 0.138 \\ 0.130 \end{bmatrix} = \begin{bmatrix} 2.07 \\ 0.74 \\ 0.64 \\ 0.73 \\ 0.78 \end{bmatrix}$$

2. Calculating λ_{max}

$$\lambda_{max1} = \frac{2.07}{0.407} = 5.09$$

$$\lambda_{max2} = \frac{0.74}{0.169} = 4.38$$

$$\lambda_{max3} = \frac{0.64}{0.156} = 4.1$$

$$\lambda_{max4} = \frac{0.73}{0.138} = 5.29$$

$$\lambda_{max5} = \frac{0.78}{0.13} = 6$$

3. Calculating the mean of λ_{max} values

$$\frac{\lambda_{max1} + \dots + \lambda_{max5}}{5} = \frac{5.09 + 4.38 + 4.1 + 5.29 + 6}{5} = 4.97$$

4. Calculating the consistency index (CI)

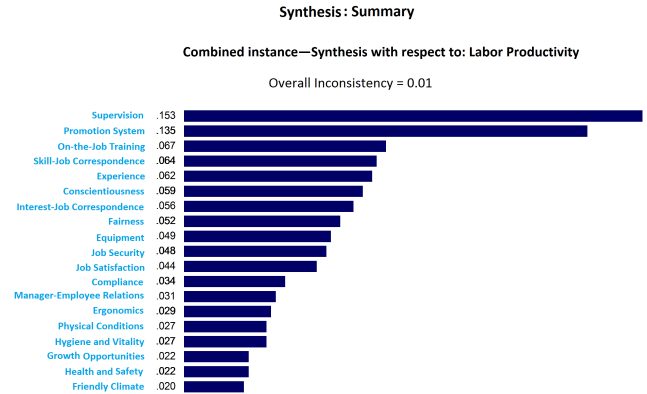
$$CI = \frac{\lambda_{max} - n}{n - 1} = \frac{4.75 - 5}{5 - 1} = \frac{-0.03}{4} = 1$$

5. Calculating the consistency rate (CR)

$$CR = \frac{CI}{RI} = \frac{0.08}{1.12} = 0.001$$

RI is the average of the resulting consistency index depending on the matrix (5x5). The random index (RI) is taken from Table 3. The calculated consistency rate is 0.001, i.e. the respondents have been consistent in their judgments. CR has been calculated for other matrices as well.

4.6. AHP hierarchy



<Figure 1> The AHP hierarchy

6. Discussion and Conclusion

By implementing AHP in Expert Choice software, it was revealed that among the driving factors of labor productivity-i.e. managerial, psychosocial, cultural, environmental, and personal factors-managerial factors were considered to be more important by the respondents. After managerial factors with an overall weight of 0.407, personal factors (0.169), cultural factors (0.156), psychosocial factors (0.138), and environmental factors (0.13) were respectively ranked second, third, fourth, and fifth by the respondents. These findings are consistent with the results of Tavari et al. (2008) who also found that managerial factors are the most important determinants of labor productivity. Among managerial factors, having a competent supervisor was ranked the most important with a weight of 0.431 and promotion system (0.379) and on-the-job training (0.189) respectively assumed the next ranks.

Among psychosocial factors of labor productivity, fairness of working conditions was ranked the most important with a weight of 0.266 and job security (0.246), job satisfaction (0.227), employee-manager relations (0.16), and friendly climate between employees (0.101) were placed in the next ranks respectively. Therefore, employees' perception of fairness in such matters as rights and responsibilities without discrimination can increase their motivation and productivity.

Among cultural factors of labor productivity, conscientiousness was considered by the respondents to be the most important factor with a weight of 0.509. Compliance with rules and regulation (0.298) and opportunities for growth and promotion (0.193) were respectively ranked second and third. Conscientiousness, which is created during the socialization process of individuals, serves as an internal control system that plays an essential role in proper performance of tasks and responsibilities. With conscientiousness, tasks are carried out with the

<Table 4> Ranking of the criteria and sub-criteria with their relative weights

Criteria	Weight	Sub-Criteria	Weight	Final Weight	Rank
Managerial	0.407	Supervisor	0.431	0.153	1
		On-the-Job Training	0.189	0.067	3
		Promotion System	0.379	0.135	2
Psychosocial	0.138	Manager-Employee Relations	0.16	0.031	13
		Job Security	0.246	0.048	10
		Fairness	0.266	0.052	8
		Friendly Climate	0.101	0.020	19
		Job Satisfaction	0.227	0.044	11
Cultural	0.156	Conscientiousness	0.509	0.059	6
		Growth Opportunities	0.193	0.022	17
		Compliance	0.298	0.034	12
Environmental	0.130	Health and Safety	0.141	0.022	18
		Hygiene and Vitality	0.177	0.027	15
		Equipment	0.319	0.049	9
		Ergonomics	0.188	0.029	14
		Physical Conditions	0.176	0.027	16
Personal	0.169	Skill-Job Correspondence	0.351	0.064	4
		Interest-Job Correspondence	0.306	0.056	7
		Experience	0.343	0.062	5

least possible waste of resources which will finally increase labor productivity.

Among environmental factors, respondents chose equipment and facilities as the most important measure of labor productivity in this category with a weight of 0.319. Ergonomics (0.188), hygiene and vitality of the workplace (0.177), the physical conditions of the workplace (0.176), and health and safety (0.141) were selected as the next most important factors respectively. Modern and efficient equipment will facilitate working for employees and will increase their productivity.

Finally, among the personal factors of labor productivity, correspondence between personal skills and the job was selected by the respondents to be the most important factor with a weight of 0.351. Experience (0.343) and correspondence between personal interest and the job (0.306) were placed at the second and third ranks respectively. The difference between these factors is not very considerable, and the category of personal factors is in the second rank in terms of the overall weight of the measures. Generally, the match between a person's interests and skills and their job can increase their productivity. Thus, acquiring the skills necessary for a specific post, being interested in the job, and having experience are essential for high levels of labor productivity.

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