Factors Affecting Motivation of Employees in Public Sector by Using Binary Logistic Regression Model: Case Study in Erbil, Iraq

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Abstract: Motivation is a general term that refers to the needs, demands, desires, or individual's internal forces. The main objective of this study is to investigate the factors affecting job satisfaction and motivation of employees in the public sector in Iraq. In order to achieve this purpose, the researcher was required to get the questionnaire filled from employees working at different organizations. This study used simple random sampling that is section from probability sampling techniques. The provenance of data for the study was the primary data collected by use of questionnaires, in the public employee sector. Survey was done in 2019. Participants attend to the questioned asked by using a 3-point Liker scale (1 = disagree, 2 = Maybe, 3 = agree). Data were obtained from randomly 250 employees working at different organizations and analyzed by using descriptive statistics and Binary Logistic regression. The results indicated that, some factors such as good communication between managers and employees, offering organizational and professional development courses with a variety of skills for employees, providing educational opportunities for employees to progress degree and achieve higher administrative authority increase employees' job satisfaction and motivation.

Keywords: Employee motivation, Job satisfaction, Public Sector, Logistic Regression, Erbil, Iraq.

1. INTRODUCTION

The concept of motivation and its parts, which stimulate us, are the most sophisticated parts of psychology in today's management. This requires a lot of efforts and research to be done. Humanitarian issues widen every day, despite the rapid advancement of technology (Egan et al., 2004). The motivation for work has occupied experts' minds widely. Research about motivation's phenomenon and its role in the person's behavior undoubtedly refers to psychological research (Bakay, 2010). There is no doubt that motivation plays a huge role in activating the outcomes and achieving goals. Therefore, managers always face the question of how to motivate employees and themselves. In every business, there are usually three partners that organizations deal. These partners are known as shareholders, employees and customers. (Cherry, 2015). Several years ago, attempts made to understand the main roots of managing mental change. This was for answering the puzzle of high quality with low price. One of the interesting and new points was that the evolved industrial and management of Japan is rooted in the solving of the quality problem (Wright, 2007). The underlying problem solving and quality control, human factors are considered. From this point of view, attention should be paid to human, and they should be handled appropriately in the workplace and industrial site. More importantly, their diversity and different opinions must be taken into consideration (Lewin et al., 2003). There is a theory which believes quality products and services could achieve quality human. Thus, organizations and manager's efforts should initially focus on building quality human. No attempt is going to be successful unless humanity in the workplace takes into account (Licht, 2010). Surprisingly, Japanese experts are highly experienced and qualified, still, when they ponder solving quality issues and an organization management framework, their research and academic work does not overlook human behavior (Garg and Rastogi, 2006). In order to increase both productivity and efficiency, factors of motivation should be known. Later on, for meeting the needs, more adequate steps must be taken. This suggests that it is multidimensional (Danish and Usman, 2010). From this sense, understanding the factors requires research and the way that is managed. It is crucial for every manager to collect information about the employee's motivation factors which results in changing the way that employees behave and react (Arnett et al., 2002). There are two job's motivating factors which were seen by some researchers. These two variables are separate as an intrinsic variable and extrinsic variable (Vandenabeele, 2009). The inherent variables contain, interesting work, promotion, feelings of involvement and career development; also, the external variables are respectable salary, job security, good working conditions and intellectual discipline (Curtis and Riva, 2009). Besides they include merit bonuses, pay raises competitive salaries and such devious forms of payment as compensatory time off and vacation and external to the job itself. Determinants of motivation relying

on literature, the motivation's meaning for employees is comprehensible (Berman et al., 2010). The purpose of this study was to analyze the effective factors on job satisfaction and motivation of employees in the public sector in Erbil-Iraq. In the study, not only socio-demographic factors but also, effect of some factors such as good communication between managers and employees, offering organizational and professional development courses with a variety of skills, providing educational opportunities to progress degree and achieve higher administrative authority, incentives and organizational culture, physical aspects of working conditions and reward on employees' job satisfaction and motivation will be investigated(Mahaney and Lederer, 2006).

2. MATHODOLOGY

Being employed in public sector is formed on the law and necessities. This sector provides people required services in the whole country. Both, salary and management positions are based on the experience and qualifications in workplace. The duties of the employees within the sector are assigned initially. Working hours differs from one ministry to another one. To obtain the necessary data for the study, a questionnaire survey has been designed particularly for this purpose collected through the employees of province Erbil, Iraq during 2019. Therefore, the sample for the study consisted of 250 employees in public sector. Data collected by administering the research instrument were analyzed in line with each research question and hypothesis. Descriptive statistics (such as frequencies and percentages) were used to answer the research questions. Binary logistic regression was used to analyze the hypotheses. The SPSS program was used to run all the analyses for the study. An extra amount of payment is given to those employees who work in those sectors that feature risky jobs, which is known as danger money. More importantly, employees can apply for a loan from government to get married and make new homes. Those employees who have been working for 15 years are entitled to asking for retirement.

2.1. Logistic regression analysis

Binary logistic regression is the statistical technique used to predict the relationship between predictors (our independent variables) and a predicted variable (the dependent variable) where the dependent variable is binary logistic regression deals with situations in which the observed outcome for a dependent variable can have only two possible types, "0" and "1" (which may represent, for instance, "dead" vs. "alive" or "win" vs. (e.g., sex (female vs. male), response (no vs. yes). Binary logistic regression is used to predict the odds of being a case based on the values of the independent variables (predictors). The odds are defined as the probability that a particular outcome is a case divided by the probability that it is a non-case. When to use logistic regression you should think about using logistic regression when your Y variable takes on only two values. Such a variable is referred to a "binary" or "dichotomous." "Dichotomous" basically means two categories such as yes/no, defective/non-defective, success/failure, and so on (Long and Freese, 2006). $E(Y/\text{ x}) = \beta_0 + \beta_1 x_1 + \beta\, n \text{ x } n... + ei$

Where Y signifies the result variable, X represents a value of the independent variable, and the β_i's symbolize the model parameters. Many distribution functions have been proposed for use in the analysis of a dichotomous outcome variable. The specific form of the logistic regression model is (Hosmer and Lemeshow, 2013). $$\pi(\text{X}) = \frac{e^{\beta\chi}/_{1+e^{\beta\chi}}}{\frac{1}{1+e^{\beta\chi}}} = e^{\beta\text{X}}$$

An odds ratio (OR) is a measure of association between an exposure and an outcome. The OR represents the odds that an outcome will occur given a particular exposure, compared to the odds of the outcome occurring in the absence of that exposure.

An odds ratio of exactly 1 means that exposure to property A does not affect the odds of property B. An odds ratio of more than 1 means that there is a higher odds of property B happening with exposure to property A. An odds ratio is less than 1 is associated with lower odds. $\text{Odds} = \frac{\pi}{1-\pi}$

3. RESULTS AND DISCUSSION

3.1. Socio Demographic Characteristics of Respondents

Segment factors in the inspiration of representatives are found in progress of in the zone of inspiration by looking at the job of socio-segment factors. The three quickest developing segments since December 2016 have been the three that are most male-ruled: mining, development, and transportation and utilities. However in a similar period ladies' work has expanded more. For reasons unknown, ladies are moving into these male-ruled fields, just as a couple of others. Here are portions of the significant ways an

adjustment in your conjugal status can influence your life (and the lives of your relatives). Moreover, a large portion of the staff workers are proceeding with instruction to getting a higher degree and partake in instructive projects to have more significant position expert in their activity. As indicated by the outcome, 33% of the respondents have degrees not exactly a secondary school, while the stayed 67% is involved by the workers that have a level of a confirmation; single guy or experts. Advanced education vocations extend employment opportunity security, liberal advantages, and work-life fulfillment all in a strategic situation that bolsters proficient improvement and profession climb. Further, results demonstrated that 60.8% of the respondent's ages are under 30 years of age, and 39.2% are over 30 years of age. Besides, the table shows that most of representatives are between 25 to 30 years of age which demonstrates that the adolescent have an excellent chance to work in Erbil which has positive outcomes on execution since youth are all the more vivacious, mechanically instructed, multi-gifted and less impervious to change (Mahmoud, 2014). Moreover, numerous representatives win a low compensation; since it is anything but quite a while they got utilized. Likewise, a little level of respondents gets a significant pay on account of long-term workers. Propelled staff is a key part of wellbeing framework execution, it is additionally one of the. Were created with question identified with socio-segment and others that. Enable your workers by giving them a main job in corporate magnanimous endeavors. Increment representative commitment and fulfillment while improving your organization's charity.

Table 1. Socio Demographic Characteristics of Respondents

Variables		Frequency	%
Gender of respondents	Male	148	59.2
	Female	102	40.8
Marital status of respondents	Single	112	44.8
	Married	138	55.2
Job status of respondents	Manager staff	50	20
	Employee staff	200	80
Education of respondents	Primary and secondary	29	11,6
	High school	53	21,2
	Diploma	52	20,8
	University	116	46,4
Age of respondents (years)	<25	43	17.2
	25-30	109	43.6
	>30	98	39.2
Household income (1000 IQD)	<500	115	46.0
	500-800	96	38.4
	>800	39	15.6

3.2. Factors Affecting Job Satisfaction and Motivation

Representatives react to thankfulness communicated through acknowledgment of their great work since it affirms their work is esteemed by others. At the point when representatives and their work are esteemed, their fulfillment and profitability rises, and they are propelled to keep up or improve their great work. A preparation program permits you to reinforce those aptitudes that every representative needs to improve. An improvement program carries all representatives to a more elevated level so they all have comparative aptitudes and information. This diminishes any feeble connections inside the organization that depend vigorously on others to finish fundamental work errands. Duty drives business results. Mindful specialists are increasingly connected with and consider them responsible to convey results. Work environment obligation, as in executing your activity obligations or following HR rules, is significant in light of the fact that it prompts a working business and a protected and agreeable workplace. Organizational justice has become a significant focal point of the board explore as of late, because of its association with various worker results; fulfillment, duty, trust and diminished degrees of turnover have all been related with a representative's apparent degree of equity in their working environment. Working environment condition is significant in light of the fact that it impacts assurance, inspiration, contracting, and efficiency. Working environment culture additionally turns into a critical factor for representative maintenance, which helps in enrolling and keeping up the best representatives. The connection among the board and worker will be certain or negative contingent upon how well individuals from the gathering, particularly chiefs, complete their jobs. The administrator must be a pioneer who gives by and large bearing and should move directors and representatives to effectively work to accomplish the gathering's targets Employee acknowledgment assumes a significant job in an organization's

way of life and remunerating staff for their difficult work has various advantages for the two gatherings. Indicating your staff you welcome them can build profitability, empower cooperation and even assistance you to pull in gifted newcomers to your business.

Table 2. Characteristics Employees of Respondents

Variables		Frequency	%
Recognition	Agree	34	13.6
	Maybe	89	35.6
	Disagree	127	50.8
Training and development	Agree	27	10.8
	Maybe	111	44.4
	Disagree	112	44.8
Responsibility	Agree	17	6.8
	Maybe	81	32.4
	Disagree	152	60.8
Justice	Agree	38	15.2
	Maybe	98	39.2
	Disagree	114	45.6
Working environment	Agree	51	20.4
	Maybe	113	45.2
	Disagree	86	34.4
Management	Agree	6	2.4
	Maybe	77	30.8
	Disagree	157	66.8
Reward	Agree	44	17.6
	Maybe	121	48.4
	Disagree	85	34.0

3.3. Binary logit model for social demographic characteristics

The Nagelkerke R^2 of model is found to be 0.305, indicating a rather strong relationship between the predictors and the prediction. Moreover, 91.3% observation were correctly classified for the take offer group and 44.2% for the decline offer group. Overall 76.8% of the probabilities were correctly classified. The analyst may well need to drop independents from the model when their impact is not significant by the Wald statistic. This is an impressive change on the 21.6% correct arrangement with the constant model so we realize that the model with indicators is a significantly better model.

Regarding to the results of logistic regression; there was a statistically significant relationship between motivation and job satisfaction of employees and 'education', 'job status', while did not reveal significant relation between other independent variables such as gender, age, marital status, salary and number of members in family.

Based on the statistically significant coefficient, the 'education' has a positive effect on the motivation and job satisfaction of employees. On the other hand, the results indicated that the odds ratio of education for motivation employee is 5.621. This imply that motivation and job satisfaction of higher educated employees are 5.62 times more likely to compare lower educated employees.

According to the results, the 'job status' has a positive effect on the motivation and job satisfaction of employees. The odds ratio of coefficient illustrated that department managers are 4.694 times more likely to have motivation and job satisfaction compare to other employees.

These results similar finding with the (Faisal et al, 2015) they found a positive correlation between education level of employees and job satisfaction. Moreover, their results indicated that motivation and job satisfaction have high correlation with gender, hierarchy level, promotion and job security. (Manzoor, 2012) found that there is a positive relationship between the employee motivation and employee recognition. Thus it is concluded that appreciation and recognition of employees and employees' tasks fulfillment stimulates them towards working with more energy and dedication to the organization (Kalimullah, 2012). On the other

hand, the study of (Srivastava et al, 2012) showed positive relationship between employee empowerment and employee motivation towards organizational tasks.

Table 3. Binary logit model for social demographic characteristics of employee

Variables	Coefficient	Standard Error	Wald Test	P-value	Odd Ratio
Gender	-0.152	0.336	0.204	0.651	0.859
Age	0.018	0.031	0.339	0.560	1.018
Education	1.727**	0.476	13.162	0.000	5.621
Marital status	0.360	0.380	0.899	0.343	1.434
Number of member in family	0.174	0.110	2.512	0.113	1.190
Job status	1.529**	0.375	16.650	0.000	4.615
Salary	0.000	0.000	0.004	0.950	1.000
Constant	-3.976	1.219	10.638	0.001	0.019
-2 log likelihood	247.886				
Nagelkerke R^2	0.305				
$\chi 2$ (p: value)	60.859 (0.000)				

Note: ***, **and* indicate significance levels at 1%, 5% and 10% respectively

3.4. Binary logit model for employee characteristics

To analyze effect of employee characteristics on motivation and satisfaction of employees, binary logit model was used. Descriptive statistics of variables in the model were illustrated in table 12. The Nagelkerke R2 variation is 0.434, indicating a rather strong relationship (43.4%) between the predictors and the prediction. Overall 76.8% were correctly classified. So, we realize that the model with indicators is a significantly better model.

According to the results of logistic regression; there were a statistically significant relationship between motivation and visibility, mission, results are expected, chance to practice. While other independent variables   did   not   reveal   significant relations.

According to the statistically significant coefficient, individuals who state that senior management and visibility are important are 3.18 times more likely to involve in motivation and job satisfaction than others. Similarly, employees who indicate that the mission or purpose of organization makes employees feel their job is important have been 2.94 times more satisfaction and motivation than others.

Based on the statistically significant coefficient, the expected results have a positive effect on the motivation and job satisfaction of employees with the odds of 5.50.

The output of the statistically significant coefficient represented that chance to practice and learn at work has a negative effect on the motivation and job satisfaction of employees. the other hand, the odds ratio indicated that employees agree with the statement "there is a chance to practice and learn at work" are 0.25 times less likely to involve motivation and job satisfaction.

In similar research, (Top 2012) stated that the attitude and role of top management are significant factors on the effectiveness of sharing information and knowledge. Moreover, the author indicated that there is a high correlation between top management perceptions and visions of knowledge and strategy.

On the other hand, (Shrivastava and Purang 2009) stated that some factors including feedback system, task derivative, pecuniary agreements, growth latitude, reward and recognition agreement, punitive agreement, innovation reinforcement, empowerment accepting culture have a significant effect on the employee motivation from the appraisal.

Table 4. Results of the logistic regression model for employee characteristics

Variables	Coefficient	Sta. Error	Wald Test	P-value	Odd Ratio
Recognizes	-0.477	0.549	0.753	0.385	0.621
Training and development	1.001**	0.454	4.860	0.027	2.721
Responsibility	0.037	0.144	0.066	0.798	1.037
Justice	1.814**	0.447	16.489	0.000	6.136
Working environment	-0.163	0.480	0.115	0.734	0.850
Job security	-1.443**	0.455	10.049	0.002	0.236
Constant	-1.296	1.041	1.552	0.213	0.274
-2 log likelihood	216.700				
Nagelkerke R2	0.434				
(p:value)	92.046 (0.000)				

Note: ***, **and* indicate significance levels at 1%, 5% and 10% respectively

4. CONCLUSION

is a significant idea that has been accepting extensive attention from academicians, analysts and rehearsing HR supervisors. In its essence, motivation contains significant components, for example, the need or substance, search and choice of procedures, objective coordinated conduct, social examination of rewards reinforcement, and execution fulfillment.

The concept of motivation and its parts, which stimulate us, are the most sophisticated parts of psychology and today's management. This requires a lot of efforts and research to be done. Humanitarian issues widen every day, despite the rapid advancement of technology. Motivation for work has occupied expert's mindset widely. Research with regard to the motivation's phenomenon and its role in the person's behavior undoubtedly refers to psychological research. Human resource is the most important and valuable asset of any organization. The organization objectives can be reached by making a good use of the resources with others in the organization. These resources consist of effective capabilities and abilities which they turn into the workforce in the workplace. In order to achieve the goal of each research, the researcher should have to look at on their own aims of their study. Throughout this investigation, our aim is to determine an identification of the reasons that cause motivation employees in Erbil-Iraq. The researcher has first, descriptive of socio-demographic characteristics of employees and information taken from the independent variable. The empirical results showed that education, job status, job security, training and development, justice, are the significant factors on motivation of employees. The results also, showed that the model provided a reasonable statistical fit. The odd ratio that the education level less likely to involve in motivation employee. In the present research, job status more likely to involve in jab satisfaction and motivation. Therefore, results are expected of me more likely to involve motivation employee. The results show top management more likely to involve motivation employee. Eventually, chance to practice less likely to involve motivation employee. In conclusion, expectancy theory is the root of all variances of motivation for employees in the workplace. Everyone needs to be motivated to perform better whatever their current situation may be and this is directly related to what they expect to receive in return for their efforts.

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