Identification and Classifying of Affecting Motivation Factors in Employee Turnover by Using Topsis Method in The National Iranian Oil Products Distribution Company (N.I.O.P.D.C)

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ABSTRACT

Objective: Motivational factors involved in reduction of employee turnover were classified in Oil Refining and Distribution Company in selected cities of Iran. For this purpose, we reviewed the literature and concepts of turnover. **Methodology**: Primary Questionnaire was designed and Distributed in statistical population to identify the effective factors involved in reduce of turn over. Main factors determined by using Minitab15 software and Pareto charts. Reliability of Questionnaire measured by retesting method. In order to classify of the identified factors, TOPSIS method was used. Then second questionnaire developed to evaluation of impact of each factors in selected cities. **Results**: Data collected and purified to make a decision matrix. Finally, effective factors classified according to weights and importance of each factor. **Conclusion**: Results showed that job security, Achievement motivation, and organizational commitment, respectively, have the greatest impact on reducing employees' turnover.

1. Introduction

Turnover is a big problem for business today. Many companies are finding it more difficult to keep employees as the economy and job market improves. Turnover costs for many organizations are very high and can definitely affect the financial performance of an organization. Direct costs include recruiting, poor production practices and reduced standards as well as high replacement and training costs (Babbie, 2001). Indirect costs include increased workloads and overtime expenses for coworkers and reduced productivity associated with low employee morale. Moreover, indirect costs associated with decreased levels of employee motivation, absenteeism, tardiness leading to customer dissatisfaction and ultimately customer defection (Gupta, 2001).

While this may seem like unnecessary advice, some organizations spend the large amount of money developing new programs and projects as well as solving problems that do not necessarily exist. Another challenge is to consider using leading indicators to spot turnover problems before they become serious issues. As mentioned earlier by Fair (1992), intention to quit is an important leading indicator along with organizational commitment and job satisfaction data. These leading indicators can crucial for early analysis and action before turnover develops into a serious problem.

Turnover can be divided into two main groups according to voluntary and mandatory. It does differentiate a person who gets out of organization by owner functioning than something gets fired by manager (Glebbeek, 2004). Since most origination experienced Malicious turnover in voluntary situation by Employees working hard, organizations should try to focus on the management and control voluntary turnover of employees.

In regard to employees who do not have the efficiency, organizations try to making logical financial incentives for early retirement, divestiture of technical knowledge, inviting them in growing networks and trying to find work for them to give them turnover conditions (Ruwan, 2007).

In this context, Current study classified effective factors causing labor turnover in National Iranian Oil Products Distribution Company.

1.2 Literature Review

The rate of turnover varies from company to company. The highest level of turnover normally found in private sectors than public sectors. The level of turnover is also different from region by region. The highest rate is found where unemployment rate is lower and where it is easy to get alternative employment (Abbritti, 2009). Turnover can occur two forms, Direct and indirect. Direct turn over take places where case the employee willingly or against their will quit his work and has no physical presence in the workplace. The second phenomenon is indirectly or virtual Turnover in which case the employees are present while their mind and skill are absent and this situation is most dangerously state (Blanchard, 2010).

Researchers believe several factors that predicted Turnover. However there has been slightly agreement among findings which is partly due to a variety of indicators for measuring. Job- related stress, and a wide variety of factors that led to job stress, lack of organizational commitment and job dissatisfaction causes employees give up from their position (Cahuc, 2011)

Doody (2007) clearly showed that stress, lack of commitment to the organization and dissatisfaction caused a person to stop working in the organization. Mano-Negrin and Tzafrir (2004) used economic models to show that the employees inclined to economic reasons left their jobs. Griffeth et.al. (2000) noted that the variables get well related and unrelated with salaries had modest effect on job displacement.

Dess and Shaw (2001) point out that the labor turns over means poor personnel policies, employee poor absorption, poor administration processes, weak complaints procedures or lack of motivation.

Mitra et al. (1992) demonstrated that turnover is associated in particular situations with demographic and biographical characteristics of workers. This study had an important role in explaining the functioning of labor markets, shedding light on the process of matching workers to firms and on the nature of the employment relationship. The study also indicates the use lifestyle factors such as smoking or past employment history such as many job changes; as an explicit basis for screening applicants to verify such bio-data empirically. In previous Studies have been found other demographic factors involved in intention to displacement including of age, tenure, education, income and occupational category (management or non-management). Rankin (2006) Sutherland (2000) found that men have higher turnover than Women.

There are other factors that cause employees give up from occupation such as weak employment trends, management style, the lack of Acknowledgement, lack of Salary and competitive advantage in organization (Johnson et al., 2000).
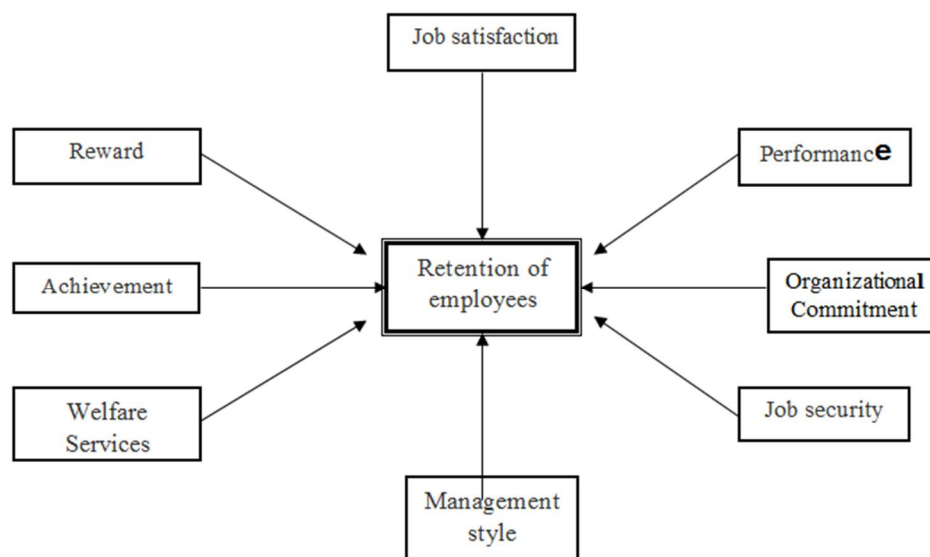

Figure1. Effective factors on Retention of employees based on finding of study

2. Materials and methods

Present study according to purpose was practical research and according to data collection Method and analysis was a descriptive-survey study. The data Collection in this study combined of library, questionnaires and interviews Methods. Factors affected the decline of turnover was obtained from recent studies on the turnover of employees, models mentioned in the earlier studies and Interviews with experts. The population of the study was consisted of National Iranian Oil Products Distribution Company employees in selected cities (Isfahan, Yazd, Kerman, Torbat hydrae, Mashhad, and Bandar Abbas). A total of 137 employees of Oil Refining and Distribution Company employees with Bachelor Science and Master science degree were randomly selected. This sample was chosen due to level of education and their experiences.

Cochran's formula was used to calculate the sample size. Where n is the sample size, N is the population size, Z is the confidence interval, P is the estimated proportion of the attribute under study, q is derived from 1 - p and finally e is the precision level (Cochran, 1977).

$$Z_{\alpha/2} = 1.96$$
$$N = 137$$
$$P = 0.5 \qquad n = \frac{N(Z_{\alpha/2})^2 \times p.q}{e^2(N-1) + (Z_{\alpha/2})^2 \times p.q} = 60 \tag{1}$$
$$q = 0.5$$
$$e = 0.095$$

Validity and reliability of the questionnaire was examined by psychological tests, skill and talent tests and abilities to perform the job in employment, and then extended to other cases. The correlation between the results of two Steps of survey investigated with Pearson correlation coefficient. R value obtained for each variable according to the criteria of the incentive to reduce turnover displayed in table 1.

Table 1. The Pearson correlation coefficient for each factor

Variable	Job satisfaction	Management style	Welfare Services	Achievement	Reward	Performance	Organizational Commitment	Job security
correlation coefficient	0.92	0.71	0.83	0.87	0.8	0.72	0.66	**0.91**

t test was used to generalized the results of the sample size to statistical population. (Table 2):

Table 2. t-test generalized the results of the sample size

Variable	Job satisfaction	Management style	Welfare Services	Achievement	Reward	Performance	Organizational Commitment	Job security
T	9.95	4.27	6.31	7.48	5.67	4.4	3.72	**9.31**

H0: There is no relationship between first step and second step.
H1: There is relationship between first step and second step.
As table 2 displayed critical region was w (t ≤ -1 / 96, t ≥1 / 96) with confidence level of 95%. Thus H0 is rejected and there is a correlation between the results of the first and second Steps.

2.1 Data analysis method

After determination of major factors, Minitab15 software and Pareto charts had been applied to identification of factors that had greatest impact on empowerment will not be the same. TOPSIS method is used to prioritize the factors identified. Second questionnaire was used to evaluate the impact of each factor and then data collected and purified to make decision matrix. Ultimately the priority of each factor was determined with considering the importance and their weights.

TOPSIS procedure steps:

Step 1
Create an evaluation matrix consisting of m alternatives and n criteria, with the intersection of each alternative and criteria given x_{ij} as, we therefore have $(x_{ij})_{m \times n}$ a matrix .

Step 2
The $(x_{ij})_{m \times n}$ matrix is then normalized to form the $R = (r_{ij})_{m \times n}$ matrix, using the normalization method

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^2}}, i = 1,2,...,m, j = 1,2,...,n \tag{2}$$

Step 3
Calculate the weighted normalized decision $T = (t_{ij})_{m \times n} = (w_j r_{ij})_{m \times n}, i = 1,2,...,m$ matrix

Where $w_j = W_j / \sum_{j=1}^{n} W_j, j = 1,2,...,n$

so that, $\sum_{j=1}^{n} w_j = 1$ and W_j is the original weight given to the indicator $v_j, j = 1,2,...,n$.

Step 4
Determine the worst alternative (A_w) and the best alternative (A_b):

$$A_w = \{\langle max(t_{ij}|i=1,2,...,m)|j \in J_-\rangle, \langle min(t_{ij}|i=1,2,...,m)|j \in J_+\rangle\} \equiv \{t_{wj}|j=1,2,...,n\},$$
$$A_b = \{\langle min(t_{ij}|i=1,2,...,m)|j \in J_-\rangle, \langle max(t_{ij}|i=1,2,...,m)|j \in J_+\rangle\} \equiv \{t_{bj}|j=1,2,...,n\}, \tag{3}$$

where $J_+ = \{j = 1, 2, ..., n|j$, associated with the criteria having a positive impact, and $J_d = \{j = 1, 2, ..., n|j$ associated with the criteria having a negative impact.

Step 5

Calculate the L2-distance between the target alternative $\dot{S}$ and the worst condition A_w

$$d_{iw} = \sqrt{\sum_{j=1}^{n}(t_{ij} - t_{wj})^2}, i = 1, 2, ..., m \tag{4}$$

and the distance between the alternative $\dot{\imath}$ and the best condition A_b

$$d_{ib} = \sqrt{\sum_{j=1}^{n}(t_{ij} - t_{bj})^2}, i = 1, 2, ..., m \tag{5}$$

where d_{iw} and d_{ib} are L2-norm distances from the target alternative $\dot{\imath}$ to the worst and best conditions, respectively.

Step 6

Calculate the similarity to the worst condition:

$$s_{iw} = d_{iw}/(d_{iw} + d_{ib}), 0 \le s_{iw} \le 1, i = 1, 2, ..., m \tag{6}$$

$s_{iw} = 1$ if and only if the alternative solution has the worst condition; and
$s_{iw} = 0$ if and only if the alternative solution has the best condition.

Step 7

Rank the alternatives according to $s_{iw}(i = 1, 2, ..., m)$

3. Discussion and results

As mentioned, which is introduced in study, various factors have been conducted in field of retention of employees. Since the data obtained from the questionnaires were primary and without any classification, thus the main factors to be identified after collection first questionnaire, by using a Pareto chart. Findings of Pareto chart are shown in table 3.

Table 3. Classification of factors in Pareto chart

| Classification	Cumulative frequency percent	Frequency	symbol	Factors	Row
A	9	59	A	Job satisfaction	1
A	17	58	C	Management style	2
A	25	57	E	Welfare Services	3
A	34	56	G	Achievement	4
A	42	55	M	Performance	5
A	49	54	Q	Organizational Commitment	6
A	57	53	AD	Job security	7
A	65	52	I	Reward	8
B	67	17	B	Relationship	9
B	70	17	H	Release of information flow	10
B	72	16	K	Individual skill	11
B	74	16	J	Independence	12
B	77	15	N	Education Level	13
B	79	15	O	Experiences	14
B	81	14	T	Meritocracy	15
B	83	14	AB	The culture of the organization	16
B	85	13	D	Confidence	17
B	87	12	P	Attitude of managers	18
B	88	12	S	Competition organization	19
B	90	12	AE	Individual influence	20
B	92	11	R	Financial incentive	21
B	93	10	U	Relation of Educational and job	22
B	95	10	L	Fast job change	23
	96	9	AC	Encourage enterprise	24
C	100	28	V	Honesty	25
			Z	Job satisfaction	26
			F	Organizational Climate	27
			AF	Innovative	28
			X	Administration	29
			W	Organizational structure	30
			AG	Innovation	31
			Y	Stress	32
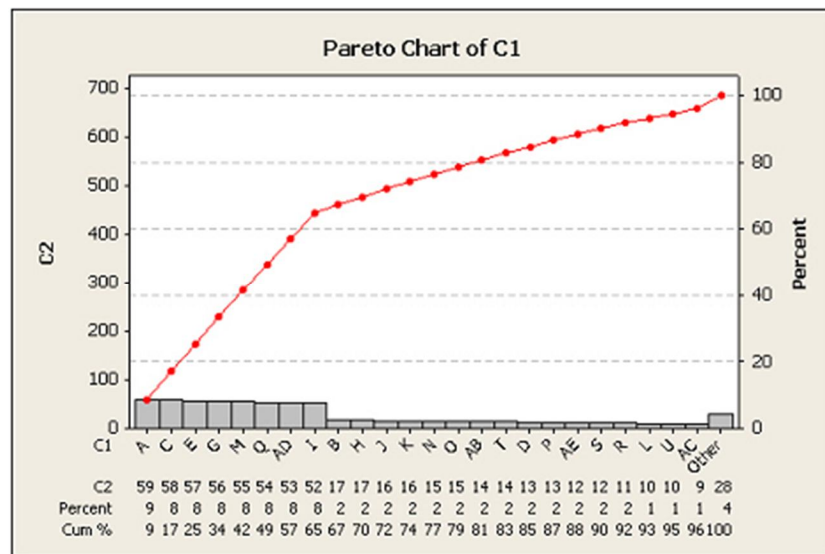
Figure 2. Pareto chart.

The Pareto chart indicated that the eight factors including job satisfaction, management style, welfare Services, achievement motivation, reward, performance evaluation, organizational commitment, and job security anticipate 67 percent of reducing risk factors of turnover in selected cities. Thus, these factors as main factors were prioritized into the decision matrix. The priority is as follows.

3.1 The relative weight of criteria (indicators) by Shannon entropy
decision-making matrix is paired comparisons was used to prioritize motivational factors contributing to the preservation and retention of human resources with a combination approach Entropy and TOPSIS, table 4.

Table 4. Employee's decision-making matrix

Factors City	Torbat hedarieh	Bandar Abass	Kerman
Job satisfaction	3.7	5.6	6.9
Management style	4.6	5.8	5.5
Welfare Services	7.4	5.3	4.3
Achievement	6.7	6.5	5.6
Reward	6.3	5.5	7.9
Performance	5.2	6.7	3.3
Organizational Commitment	4.6	7.2	5.3
Job security	5.5	5.2	3.2

Table 5. The matrix is normalized to form by using normalization method

Total square columns	15.8947	17.0101	15.4706
Factors City	Torbat hedarieh	Bandar Abass	Kerman
Job satisfaction	0.2327	0.3291	0.4459
Management style	0.2893	0.3409	0.3555
Welfare Services	0.4654	0.3115	0.2779
Achievement	0.4215	0.3821	0.3620
Job security	0.3964	0.3233	0.5106
Performance	0.3523	0.471	0.2596
Organizational Commitment	0.2894	0.4233	0.3426
Reward	0.3460	0.3057	0.2068

Table 6. Calculate the weighted normalized decision matrix

Entropy Method	Torbat hedarieh	Bandar Abass	Kerman
EJ	1.384	1.402	1.365
DJ=1-EJ	-0.384	-0.402	-0.365
Weight of factors WJ=∑DJ /DJ	0.166	0.173	0.157

Table 7. Professional experts Decision Matrix according to criteria 6 and 8 options

	Yazd	Isfahan	Mashhad
Job satisfaction	5.9	4.4	5.7
Management style	6.8	8.2	3.6
Welfare Services	6.3	4.4	5.2
Achievement	6.4	6.4	5.5
Job security	5.7	4.3	7.8
Performance	6.8	5.8	5.3
Organizational Commitment	6.2	6.3	7.7
Reward	7.3	4.4	5.7

Table 8. Positive and negative ideal solutions for indicators

Best alternative	0.07	0.082	0.079
worst alternative	0.055	0.043	0.037

Table 9. Ranking of motivational factors affecting human resources specialist with TOPSIS

	CL	d-+d+	d+	d-	Priority
Job satisfaction	0.41066	0.10598	0.06246	0.04352	6
Management style	0.45090	0.10653	0.05850	0.04803	4
Welfare Services	0.41197	0.10623	0.06246	0.04376	5
Achievement	0.56454	0.09052	0.03942	0.05110	2
Job security	0.57275	0.11167	0.04771	0.06396	1
Performance	0.34758	0.09617	0.06275	0.03343	7
Organizational Commitment	0.55423	0.10094	0.04500	0.05595	3
Reward	0.31533	0.10277	0.07036	0.03241	8

According to professional experts' decision matrix than main criteria of Study and results of TOPSIS, job security, achievement motivation and organizational commitment by weight of CL 0.572, 0.564 and 0.554 respectively are ranked first, second and third that is shown the table above.

4. Conclusion

Present study evaluated and ranked the effective factors on reduction of employee's turnover in Oil Company by TOPSIS method. The results showed that the job security and job satisfaction have the greatest impact and is minimal impact (Respectively) among motivational factors influencing the decline in turnover.

An interesting conclusion was obtained which none of the economic factors gets sufficient conditions for the selection.

This is consistent with the Hawthorne study that means psychological factors are more important than economic factors for human resources. Recent studies show that employees, who have high job security, are more likely to take action at the right organization and are less inclined to leave. The result of this study was consistent with of Hannah (2012), and Akinruwa et al. (2014) study. Therefore, desired job security will be caused creativity and innovation of employees, increase retention in the organization, satisfaction, belong sense, dependency and attachment, improving their job performance, reduce left of employees, active socially behavior, lack of absenteeism, altruism and helping colleagues and decrease of occupational stress. Beneficial of low employees' turnover led to financial success and enhance the effectiveness and efficiency in the organization. Furthermore, the community will be improved from   effort of employees and organizational benefit.

Whatever employees be trusted to their managers and have higher sense of security it may give them a higher commitment. Even more they'll refuse of organization leaving if they find a good job. studies of Akinruwa et al. (2014) and Guan et al. (2014) along with this study suggested that higher level of trust in the organization followed by organsational commitment subsequently decrease turnover will be achieved.

Employees, who have a good performance, remain in the organization.

It seems when employees achieve a desirable level of performance, it is reasonable to refuse of turnover, Because of their investments in an organization and in its own time and life they remain in the organization if get desired performance. These results are consistent with findings and tartar Tella et al. (2007), Yi et al. (2011) and Direnzo and Greenhaus (2011).

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