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# **Influences of Job Satisfaction, Basic Resources and Global Competition on Industrial Performance - An Empirical Analysis**

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**Abstract:** The paper extracts the information about the influences of various attributes on industrial performance and hence industrial productivity. It is well known facts that satisfied workers work with more zeal and efficiently and effectively. Therefore motivated works play vital role in improving industrial performance. An attempt is made to know the perceptions of the employees of the industrial estate at Vitthal Udyognagar in Anand district of Gujarat, India. Questionnaires were distributed among the employees of industries of the estate under research study. The various statistical tests were carried to uncover the factors affecting industrial productivity. The results of the analysis suggest that the aspects considered have positive impacts on higher overall organizational performance.

**Keywords:** Chi-Square, Employees, Hypothesis, Performance, Productivity, Questionnaire

## I. INTRODUCTION

The main purpose of this study was to identify factors affecting in improving industrial performance and hence industrial productivity. This study is based on empirical analysis. Primarily, researcher selected randomly 250 organisations for their views about various aspects that influence the industrial performance. The aspects were job satisfaction, resources, and global competition. The statistical tool, SPSS17.0 has been used to carry out various statistical analyses. This study aims to link some of the criteria that help improving individual as well as organizations' performance. The researchers found that, there are positive impacts of the criteria considered. One of the vital needs of the developing countries in the global era is to improve industrial productivity by the way of improving industrial performance hence to raise living standard of its people.

## II. THE CASE

A case study was conducted at Vitthal Udyognagar, GIDC district, Anand. This research study through the industrial estate is expected to open up new vistas of opportunities in the wide areas of productivity improvement in industries of the estate, where 220 industries have been recorded at the start in 1980 and it has reached to 611 industries registered as per the record available with Vitthal Udyognagar Industries Association (VUIA). In fact there are 1000 odd units working at presents. Out of these, majorities units are in small scale sector. Many of these industries were sick and closed or about to close. Since 1965, this industrial area has developed by leaps and bounds and now it is one of the largest engineering estates in Gujarat state, providing employment to nearly 25000 persons in the various organisations.

## III. THE OBJECTIVE

The objective is to uncover the underlying factors that influencing industrial productivity. To study the impact of various aspects of job satisfaction, basic resources and global competition on industrial performance of the estate under study.

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 2, Issue 10, October 2013

## IV. THE RESEARCH DESIGN

A questionnaire was structured to get the primary data from the representative industrial units. The units were selected from the members' directory published by Vitthal Udyog Nagar Industries Association (VUIA). 250 organisations were selected and questionnaires were distributed among respondents of the representative organisations. The data were cleaned by identifying out-of-range and logically inconsistent and incomplete information in the filled questionnaires. Finally, out of 250 questionnaires distributed, 156 found usable for the statistical analysis and have resulted in final sample size. The response rate was 62.40%, considered acceptable for the research study and analysis. The data were collected using five point Likert scale: Strongly disagree (1), Disagree (2), Neutral (3), Agree (4) and strongly agree (5). These data were analysed using statistical software for the various attributes to draw conclusions [11, 14].

## V. THE ANALYSIS

SPSS 17.0 software was used to carry out various statistical analyses to evaluate the various aspects which are influencing industrial performance and hence productivity. Frequency distribution was carried out to know the demographic details. In research survey, there may be a large number of variables, most of which are correlated and which must be reduced to a manageable level and to uncover the factors which represent their relationships among sets of many interrelated variables were examined and represented in terms of a few underlying factors. Factor analysis allows us to look at groups of variables that tend to be correlated to each other and identify underlying dimension that explain the correlations. Chi-Square ( $\chi^2$ ) Test is used to determine whether the two attributes are independent of each other. Chi-Square ( $\chi^2$ ) test enable us to test whether more than two population proportions can be considered equal. Many times decision makers need to know whether the differences they observe among several sample proportions are significance or only due to chance. If this difference is significant, the decision maker may conclude that attributes will affect the way the attributes act. But if the difference is not significant (that is, if decision maker concludes that the difference is solely due to chance), then he may decide that the attributes considered have no effect on industrial performance. Then one has to determine whether the variables are independent or dependent [11, 14].

### A. Demographic Characteristics

**Respondents' sex:** The number of male respondents in the survey were 150(96.20%) and 6(3.80%) were female respondents.

**Respondents' qualification:** Most of the respondents those participated in the survey were graduates and have educational qualification above it. 5.10 percent of the respondents were Ph.D., 22.40 percent of the respondents were post-graduates, 66.10 percent of respondents were graduates and the remaining 6.40 percent were undergraduates.

**Respondents' work experience:** The highest work experience 39.70% between 10-20 years, 23.70% between 21-30 years, 23.10% less than 10 years, 12.20% of respondents were above 30 years of experience and only 1.30% respondents were of more than 40 years of experience have participated in this study.

**Category of the company:** As mentioned earlier majority units are in small scale. The same thing is reflected over here. In this survey 70.51% (110) are in small scale, 19.23% (30) in medium scale and only 10.26% (16) large scale units have participated and provided relevant data for this research study.

**Sector of the company:** Out of 100% respondents (156 units sample size), 89.20% of units in private sector, 5.10% of public sector, only 0.60% government units, while 5.10% were others have participated and supplied data for the analysis.

**Classification of the industry:** Estate under study was dominated by 67.30% (105) engineering units, the other classified units were very few in the dedicated sample: 3.80% electrical/electronics, 5.80% paints, varnishes and 3.20% chemicals industries. Remaining miscellaneous units amount 19.90% of the total, have participated in this research study and supplied the relevant data for this study.

**ISO Certificate:** The 25% of respondent industries having ISO Certificates, 75.00% of industries were without ISO Certificates .have participated in this study.

**Man Power:** Out of 156 representative industries and total employee 12092, 97.59% male employees and only 2.41% female employees in the industries of the sample considered.

**Markets:** Markets scenario shows demands: Indigenous (19.90%), state level (29.50%), national level (23.70%) and international level (26.90%) were recorded of the representative organization of the sample considered. State level demand observed slightly more compared to national and international demands.

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

**Vol. 2, Issue 10, October 2013**

**Technical collaboration:** 82.70% of industries do not have any technical collaboration with third party either nationally or internationally, only 17.30 % industries do have technical collaboration and have responded to the questionnaire.

### B. Reliability Test

An effective tool for measuring reliability is Cronbach's alpha, which is a numerical coefficient of reliability. Alpha coefficient ranges in value from 0 to 1 and may be used to describe the reliability of factors extracted. The higher is the score, the more reliable the generated scale alpha value 0.7 to be an acceptable reliability [11].

Here Cronbach Alpha is 0.784 shows that questionnaire is reliable and can be used for statistical analysis.

TABLE 1  
RELIABILITY STATISTICS

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.774	0.787	15

### C. Correlation Coefficient (r)

TABLE 2  
CORRELATIONS COEFFICIENTS(r)

Var	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15
V1	1														
V2	<b>0.580**</b>	1													
V3	0.449**	0.464**	1												
V4	<b>0.564**</b>	<b>0.521**</b>	<b>0.669**</b>	1											
V5	<b>0.650**</b>	<b>0.561**</b>	0.611**	<b>0.795**</b>	1										
V6	0.303**	0.208**	0.244**	0.267**	0.301**	1									
V7	0.107	0.228**	0.249**	0.294**	<b>0.324**</b>	<b>0.313**</b>	1								
V8	0.186*	0.134	0.166*	0.149	0.196*	<b>0.330**</b>	<b>0.530**</b>	1							
V9	0.186*	0.084	0.162*	0.064	0.091	<b>0.357**</b>	0.482**	<b>0.583**</b>	1						
V10	0.108	0.087	0.043	0.210**	0.184*	0.213**	0.211**	0.443**	<b>0.353**</b>	1					
V11	-0.010	0.036	0.044	0.034	-0.043	0.053	0.194*	0.108	0.022	<b>-0.129</b>	1				
V12	0.014	0.125	0.110	0.022	-0.052	0.169*	0.181*	0.056	0.059	-0.117	<b>0.634**</b>	1			
V13	-0.100	0.008	-0.080	-0.0121	-0.107	-0.009	0.156	0.037	0.064	-0.151	0.584**	<b>0.426**</b>	1		
V14	0.025	0.137	0.066	-0.0010	0.045	0.113	0.080	0.078	0.005	-0.103	0.345**	0.241**	<b>0.540**</b>	1	
V15	0.075	0.181*	0.146	0.047	0.093	0.181*	0.113	0.145	0.111	0.004	0.163*	0.259**	0.376**	<b>0.738**</b>	1

\*\* . Correlation is significant at the 0.01 level (2-tailed),

\* . Correlation is significant at the 0.05 level (2-tailed).

The degree of correlation(r) is measured by the coefficients of correlation. It is a measure or index, which speaks the magnitude of relationship between two variables. At the same time correlation coefficient also provides information about the direction of the relationship (whether it is negative or positive). It varies between -1 and +1 keeping 0 in the centre. r = 0 means there is no correlation among the variables. Correlation matrix shows the relationship among the variables which contribute to higher industrial productivity. Here variable 5 (recognition) & variable 4 (promotion); both of job satisfaction with high correlation coefficient (r = 0.795) contributing to higher industrial productivity. Similarly, variable 15 (ISO certification) and variable 14 (Image of the company); both with high correlation coefficient (r = 0.738) contributing to higher industrial productivity.

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 2, Issue 10, October 2013

### D. Model Fitness

Correlation matrix, Reproduced correlations and Residuals were calculated with the help of SPSS and observed that there are 35(33.00%) non- redundant residuals with absolute values greater than 0.05. Lower the percentage of ‘the non-redundant residuals with absolute values greater than 0.05’, then higher the acceptability of the model fit. Here 33.00 % is low percentage, so the model used is considered as acceptable, data explain substantially because the number of ‘the non-redundant residuals with absolute values greater than 0.05 is less than 50 percent. (Tables of ‘correlation matrix’, reproduced correlations’ and ‘residuals’ are not shown) [11].

### E. Factor Analysis

Factor analysis is used to uncover the underlying factors to few interpretable dimensions. Appropriateness of the factor analysis is tested by KMO and BARTLETT'S test. Here value of KMO = 0.747, signifies that factor analysis is appropriate. Four factors are identified with 67.409 % of total variance explained at Eigen value =1.915. The scree plot confirm the four factors at the start of the scree in the curve as shown in figure1 [11, 14].

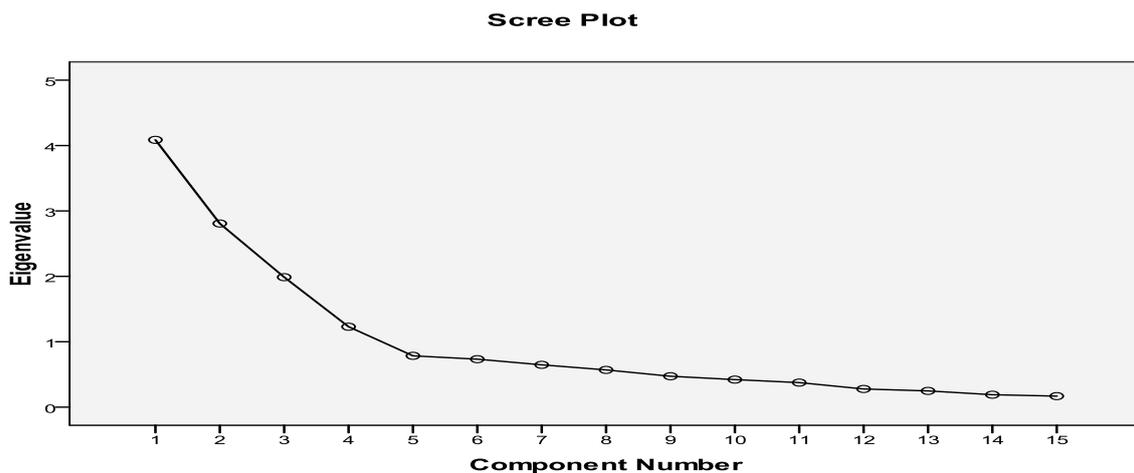


Fig.1 Scree plot to identify the number of factors

#### Factor 1: Job Satisfaction

The variables that contribute to enhancing industrial productivity are: Salary (0.777), Bonus (0.744), Workload (0.768), Promotion (0.869), and Recognition (0.878) are associated with corresponding factor loadings.

#### Factor 2: Basic Resources

The variables that contribute in increasing industrial performance are availability of: Land (0.506), Water (0.659), Power (0.842), Raw material (0.820) and Man power (0.632) are associated with corresponding factor loadings.

#### Factor 3: Industrial Scenario

The variables that contribute in increasing industrial performance are: Globalization (0.889), Liberalisation (0.827), and Privatisation (0.661) are associated with corresponding factor loadings.

#### Factor 4: Industrial Productivity

The variables that contribute in increasing industrial performance are: ISO Certificate & Image of the company (0.899), and ISO certification & Productivity (0.905) are associated corresponding with factor loadings.

**Hypothesis:** Hypothesis testing is one of the important areas of statistical analyses. Sometimes hypothesis testing is referred to as statistical decision-making process. In day-to-day situations we are required to take decisions about the

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 2, Issue 10, October 2013

population on the basis of sample information. A statistical hypothesis is defined as a statement which may or may not be true about the population parameter or about the probability distribution of the parameter that we wish to validate on the basis of sample information. The probability of chance occurrence of the observed results is examined by the null hypothesis ( $H_0$ ). Null hypothesis is a statement of no difference. Since, the null hypothesis is a testable proposition, there is counter proposition to it known as alternate hypothesis and denoted by  $H_1$  in contrast to null hypothesis.

1.  $H_{01}$ : There is no association between the job satisfaction and industrial performance.
2.  $H_{02}$ : There is no association between the basic resources and industrial productivity.
3.  $H_{03}$ : There is no association between the global competition and industrial performance.

TABLE 3  
RESULTS OF CHI-SQUARE TEST

I	Job satisfaction enhances industrial performance	CV	TV	DF	□	P-Value
	Chi –Square results	<b>30.45</b>	<b>26.296</b>	<b>16</b>	<b>0.05</b>	P < 0.158
II	Basic resources play vital role in increasing productivity	CV	TV	DF	□	P-Value
	Chi –Square results	<b>210.66</b>	<b>26.296</b>	<b>16</b>	<b>0.05</b>	P < 0.2598
III	Global competition improves industrial performance	CV	TV	DF	□	P-Value
	Chi –Square results	<b>93.82</b>	<b>26.296</b>	<b>16</b>	<b>0.05</b>	P < 0.1734

CV-Calculated Value of Chi-square, TV-Table value, □ -Level of significance

TABLE 4  
RESULTS OF DESCRIPTIVE ANALYSIS

Sr. No.	Attribute	Yes (%)	Neutral (%)	No (%)	Total
I	Job satisfaction enhances industrial performance	53.33	45.00	1.67	100.00
II	Basic resources play vital role in increasing productivity	50.13	33.72	16.15	100.00
III	Global competition improves industrial performance	82.82	10.38	6.79	100.00

No - (1.Strongly disagree, 2.Disagree), **Neutral**- (3.Neutral), **Yes**- (4.Agree, 5.Strongly agree)

### Interpretation of Results :( Table 3 & Table 4):

#### I. Job satisfaction enhances industrial performance:

The Job satisfaction has positive relation with the industrial performance. Table 4 shows that 53.33% of respondents in the opinion that Job satisfaction helps in enhancing industrial performance and hence industrial productivity. Since  $X_{CV}^2 = 30.45 > X_{TV}^2 = 26.296$ , null hypothesis is rejected. It has mentioned that the job satisfaction enhances industrial performance and hence industrial productivity.

#### II. Basic resources play vital role in increasing productivity:

The Basic resources have positive impact on the industrial performance. Table 4 shows that 50.13% of respondents in the opinion that Basic resources play vital role in increasing productivity. Since  $X_{CV}^2 = 210.66 > X_{TV}^2 = 26.296$ , null hypothesis is rejected. It has mentioned that the basic resources play vital role in increasing productivity.

#### III. Global competition improves industrial performance:

The Global Competition has positive impact on the industrial performance. Table 4 shows that 82.82% of respondents in the opinion that Global Competition improves industrial performance. Since  $X_{CV}^2 = 93.82 > X_{TV}^2 = 26.296$ , null hypothesis is rejected. It has mentioned that the Global competition improves industrial performance and hence industrial productivity.

## VI. THE LIMITATIONS

The limitations during survey across the estate were found as under:

- Non-availability of some secondary data.
- Responses with reservation caused limited co-operation from some of the respondents.
- Top, middle and lower-levels employees responded differently and might have added little or more bias.

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 2, Issue 10, October 2013

- The postponements of the responses were time consuming and tiresome.
- Unwillingness to disclose certain information by the respondents.
- The investigator was thought to be industry-agent / government authority extracting information was difficult.
- The time factors, poor awareness of some respondents were other limitations.
- The supervisors and technicians were scared about the disclosing problems they were facing at workplace.
- Workers' lower education, language problem and lack of freedom to disclose were major constraints.

## VII. CONCLUSION

The study mainly focused on the influences of various attributes on industrial performance and hence industrial productivity. It is well known facts that satisfied workers work with more zeal and efficiently and effectively. Therefore motivated works play vital role in improving industrial performance. An attempt is made to know the perceptions of the employees of the industrial estate at Vitthal Udyognagar in Anand district of Gujarat, India. The various statistical tests were carried to uncover the factors affecting industrial productivity. The results of the analysis suggest that the aspects considered have positive impacts on higher overall organizational performance. The study mainly focused on finding the impacts of job satisfaction, basic resources and globalization and competitiveness on industrial performance and hence productivity. It is interesting to note that almost everybody in the opinion that globalization has changed the present industrial scenario, and it is the demand of the day. The set attributes regarding globalization, liberalization and privatization, all these attributes have their own effect on the industrial performance. The four factors uncover the associations of the 15 attributes. These factors contribute to the improvement in industrial performance leading to higher productivity and improved living standard of the people.

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(An ISO 3297: 2007 Certified Organization)

Vol. 2, Issue 10, October 2013

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