

factors specific to the bargaining process from the effects of overall economic development."

Samita Sen said that, "In pre-liberalization the jute mills were male dominated, poor urban women who lived and worked in this environment were confronted with frequent sexual harassment and the difference between male and female earnings also.

The studies conducted by Amiya Kumar Bagchi and Mason, P.L. revealed that, "The effect of Globalization on historiography and the economics of labour is dotted with conceptual frameworks which posit any (or several) of the following kinds of dualism: Dualism of body and mind, Dualism of unfreedom and freedom under fully developed capitalism, Dualism of unfree (pre-capitalist, pre-colonial) and free (capitalist, colonial) markets, Dualism of industry and agriculture (as in Lewis-type models of dualistic growth and development), Dualism of formal and informal markets of labour, Dualism of primary

Surveys conducted by Pravin Sinha and The Economic Times February, 2002 reveal that, "The trends indicate that in the years to come the Indian labour market will be of dual nature. The majority of the workforce would be unskilled/semi-skilled working on a casual basis. Rana Hasan, Devashish Mitra & K.V Ramaswamy said that, "in the post liberalization, volatility in productivity and output gets translated into larger wage and employment volatility, theoretically a possible consequence of larger labour-demand elasticity, leads to the deleterious effect on the wages and employee relations."

5. Research Design

The research methodology, which is adopted in this study has been discussed under the following heads:

1. Method of data collection
2. Questionnaire Design
3. Selection of the sample
4. Techniques of Analysis and Interpretation

5.1. Method of Data Collection

Keeping the objectives of the study in mind, the following methodology has been adopted for conducting the present study. While the views and opinions on broad issues have been collected from selected employees who have more than 15 years of experience from various departments and plants in the jute industry in North coastal Andhra Pradesh. The sample respondent employees constituted the main source of information which is collected by administering a structured questionnaire. Not only the opinions of employees, the researcher should take the opinions of the management representatives, trade union leaders, various labour officers, and government officials of state and central government of the jute industry those who are having more than 15 years of experience.

5.2 Questionnaires design

The researcher constructed a questionnaire using a five-point scale. Each statement in the questionnaire has five

alternatives. The respondent was required to give his/her opinion by putting a tick (✓) mark on any one of the five alternatives. The alternatives are Strongly agree, Agree, Neither agree nor disagree, Disagree and Strongly disagree. The questionnaire consists of 26 questions of three segments i.e. Wage and Salary Administration (12), Social security measure (7) and Welfare facilities (7). The questionnaire was related to industrial relations in post liberalization in North coastal Andhra Pradesh jute industry. Before administering the questionnaires, the researcher has conducted a pilot study in order to test the validity and appropriateness of the statements. To establish reliability and validity of the questionnaire, the researcher personally visited and conducted pre-test administrations of the questionnaire. This pre-test helped the investigator to structure the questionnaire and to improve the effectiveness of the final questionnaire.

5.3 Sample Design

The sample element must be derived from the population set which will be the true representation of the population set. The sample can be formed through probability and non-probability sampling techniques. We have used stratified-probability sampling techniques for deriving population set. The population has been classified into a number of homogeneous sample elements on the basis of employees' experience. The sample size has been calculated through online sample size calculation method using website [powerandsamplesize.com](http://www.powerandsamplesize.com)

Statistical Design

The researcher is to be tested the questionnaire which consists of 19 statements for its reliability by using Cronbach's alpha and found that the overall reliability of the above variables and corresponding items used are acceptable. The researcher is interested to apply Cronbach's alpha test to measure of internal consistency that is, how closely related a set of items as a group. Cronbach's alpha can be written as a function of the number of test items and the average inter-correlation among the items.

Factor analysis is to be used by researchers to identify variables and a pattern of correlations within a set of observed variables. Here, a single respondent's opinion about all statements were totaled and divided with total number of respondents reached to average mean scores of each element. Standard deviation is a measure of how the observations are located in relation to the mean. If the standard deviation is high, it indicates that there is inconsistency; if it is low there is a consistency among the factors

Researcher can be used correlation matrix to check the pattern of relationships. Correlation table will be indicated the clarity for making comparison of each IR element with another element. Next to that, the researcher is interested to find KMO (Kaiser-Meyer-Olkin) and Bartlett's test to check the adequacy and association between elements.

6. Data Analysis and Interpretation

The researcher tries to check the validity of the questionnaire, adequacy of information, sufficient

information through Cronbach's alpha breitel test. If alpha value is more than 0.5 then it is acceptable. The table 6.1 shows that Cranach's alpha value is more than the expected range for different district of 19 parameters aggregated by nine components which shows that the data is appropriate for analysis. The researcher also tries to find out the validity of data of the district of individual component. As a whole the table shows the completeness of data set as whole or individual components.

- 1) Wage & Salary Administration
- 2) Welfare measures
- 3) Social Security measures
- 4) Work environment

- 5) Grievance handling system
- 6) Participative management
- 7) Role of Trade unions
- 8) Impact of Strikes and Lock-outs
- 9) Employee Job satisfaction

Through Crohenbech's Alpha Betel test, the researcher interested to test the reliability, validity and adequacy of the data to be analyzed. As we know that the value more than 0.5 can be accepted and used for the analysis. The below table shows that the alpha value is almost more than 0.7, which indicates that the data is valuable for analysis

Wage And salary	Welfare	Employee Job Satisfaction	Social Security Measure	Work environment	Grievance	Participative mgt	Strike lockout	Job satisfaction
.762	.636	.689	.781	.842	.759	.639	.879	.763

The first step of data analysis is to describe or summarize the characteristics and behavior of data set using statistical tools. Here the researcher has tried to analyze through Mean, Median, Mode, Standard deviation and Skewness of the statistical tools. The table indicate that, the researcher have taken twelve parameters for analyze Role of trade unions component for analysis. In this table we can observe for all the case mean is greater than median and greater than mode,

which indicates that the case is normally distributed over the distribution. The standard error of mean of the attributes lies around 0.07 which shows that the data is suitable for the analysis. The standard deviation for all the attributes are more than one which indicates the employees given wide verity of answer for the questions.

Descriptive Statistics

Particulars	Wage And salary.	Welfare	Employee Job Satisfaction	Social Security Measure	Work environment	Grievance	Participative mgt	Strike lockout	Job satisfaction
N	Valid	220	220	220	220	220	220	220	220
	Missing	0	0	0	0	0	0	0	0
Mean	1.31	1.40	1.34	1.26	1.33	1.42	1.40	1.24	1.28
Std. Error of Mean	.072	.066	.067	.087	.070	.062	.076	.077	.057
Median	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Mode	2	2	2	2	2	2	2	2	2
Std. Deviation	1.071	.972	1.001	1.286	1.035	1.171	1.072	1.021	1.126
Skewness	-1.553	-1.609	-1.443	-3.757	-1.448	-1.23	-1.409	-1.473	-2.357
Std. Error of Skewness	.164	.164	.164	.164	.164	.164	.164	.164	.164

KMO and Bartlett's test of sphericity produces the Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test. I have already stumbled across KMO and Barlett's test and have seen the various criteria of adequacy, but with a sample of 200 I shouldn't have cause to worry.

proportion of common variance within a variable. Principal component analysis works on the initial assumption that all variance is common; therefore before extraction the communalities are all 1. In effect, all of the variance associated with a variable is assumed to be common variance. Once factors have been extracted, we have a better idea of how much variance is, in reality, common. The table shows that 70% of the variance associated with question1 is common or shared, variance. Another way to look at these communalities is in terms of the proportion of variance explained by the underlying factors. As most of the researcher indicates that the communalities value should be 0.4 and more for the factor analysis. The table indicates that the data is suitable for the factor analysis

Table 5.4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.744	
Bartlett's Test of Sphericity	Approx. Chi-Square	358.723
	df	66
	Sig.	0

For the KMO statistic Kaiser(1974) recommends a bare minimum of 0.5 and that values between 0.5 and 0.7 and that values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values about 0.9 are superb (hutcheson & sofronious, 1999). For these data the value is 0.794, which falls into the rang of being good. So we should be confident that the sample size is adequate for factor analysis.

The table shows the communalities before and after extraction. As we know that the communality is the

Communalities

	Initial	Extraction
Wage & Salary Administration	1.000	.702
Welfare measures	1.000	.372
Social Security measures	1.000	.301
Work environment	1.000	.531
Grievance handling system	1.000	.643

Participative management	1.000	.872
Role of Trade unions	1.000	.781
Impact of Strikes and Lock-outs	1.000	.655
Employee Job satisfaction	1.000	.749

Extraction Method: Principal Component Analysis.

The table indicates the total variance explained for the research. Initially the researcher has considered five no. of attributes/parameters for the research but this table indicates the number of factors for attribute will be two. These attributes are identified whose Eigen values are more than one. The first parameter whose variance is 29.071% is as compared to 23.904% for parameter - 2. These two parameters are explained 50.976% variance as a whole.

Table 7.6: Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.354	29.071	27.071	1.354	27.071	27.071
2	1.195	23.904	52.976	1.195	23.904	50.976
3	.941	15.828	68.804			
4	.607	10.139	78.943			
5	.603	9.057	88.000			
6	.321	4.462	92.462			
7	.287	3.345	95.807			
8	.239	2.947	98.754			
9	.238	1.246	100.00			

Extraction Method: Principal Component Analysis.

Here the researcher tried to extract the factors which can be considered and so some information is lost. The retained factors cannot explain all of the variance presents in the data but they can explain some. The amount of variance in each variable that can be explained by the retained factors is represented by the communalities after extraction. However we requested that all loading less than 0.4 be suppressed in the output. Through the rotated component matrix I have derived that the first parameter will be participative management and role of trade union. The second parameter will be the combination of wage and salary administration and employee job satisfaction

6. Conclusion

The members of the industrial relations are employees, employer, trade unions and government. For harmonious industrial relations these four play a significant role. These four are independent as well as interlinked and interdependent also. Jute industry is an employee intensive industry. The organization sustainability is depending on the good industrial relations, According to the detailed study and survey, here the researcher give some suggestions to the Employees, Employers, Trade unions and Governments to improve the Industrial relations. They are as follows: participative management, role of trade union, salary & wage and employee job satisfaction must be given higher priority to improve the quality of the jute industry

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