IDENTIFICATION OF ECONOMIC FACTORS CONTRIBUTION IN GREEN AUDIT AND REPORTING PRACTICES

Dipti Agrawal
Research Scholar, P.M.B. Gujarati Commerce College,
Nasia Road, Indore
Rajendra Sharma
Assistant Professor, P.M.B. Gujarati Commerce College,
Nasia Road, Indore

Abstract

To measure environmental activities of an organization and their resulting impacts of business on the society, it is necessary to account for the concern's environmental costs, benefits, assets and liabilities. Complete greening of accountancy and measure the relevant environmental costs and liabilities. It also analyse the extent to which environmental activities and performance can influence managerial decisions and financial results of a company. It will help the organizations to identify the resource utilization and the incurred cost. This paper aims to check the effect of economic Factors on Green Audit and Reporting Practices (GARP) Performance. The hypothesis is based on available information collected from automobile industries. The chi-square tests is applied for hypothesis testing as the collected responses are dichotomous. The total six economic sub factors of are considered for this study. The results disclosed that economic factors are the significant in GARP performance.
Keywords: *Green audit and reporting practices, Economic factors, Automobile industries*

Green audit and reporting practices considered to be an important tool for understanding the influential aspects of natural environment with respect to the economy. Due to growing social and legal pressures and increasing judicial intervention, there has been a growing demand for disclosure of environmental policies, practices and performance of a company to the interested stake holders in or outside the concern. GARP is the term commonly used to describe the disclosure by an entity, of environmentally related data, verified or not, regarding environmental risk, environmental impacts, policies, strategies, targets, cost, liabilities or environmental performance to those who have interest in such information (Radiah et al, 2013). As an aid to enabling their relationship with the reporting entity, via the annual report and accounts package; a standalone corporate environmental report, a site-cantered environmental statement, or some other medium. Environmental audit has been defined as systematic process of objectively obtaining and evaluating the evidence relating to the performance of an organization as reflected in the environmental reports.The advantage GARP initiative is identified the ability to determine and create awareness regarding costs related to environment (Perez, 2007)). It will help to identify the cost reducing and avoiding technics. It will ultimately improve the environmental performance. According to Deshwal (2015), the GARP is a tool which improves the environment performance, controlling costs, investing in cleaner technologies, developing greener processes, and performing related to product mix, product retention and product pricing (Abdel-Rahim, et. al.; 2010; SeowChian, et. al., 2017). The automotive industry is most important and strategic industry in manufacturing sector. It is the largest manufacturing enterprise in the world and one of the most resource intensive industries. Its products and processes are a significant source of environmental impact (Gaudillat, et al., 2017). Thus, there is a need to

evaluate sustainable manufacturing performance in this industry.From extensive literature survey, it is identified that for sustainable manufacturing evaluation believed to be appropriate to automotive companies, consisting of three factors namely social, environmental and economic. This paper proposes a set of economic parameters and future research will focus on another remaining KPI of GARP.

Research Methodology

The above discussed automobile industries shows the importance of automobile industries. Thus, there is a need to evaluate sustainable manufacturing performance in this industries through the lens of economicfactors. Researchers collect the data through a well-designed questionnaire for to determine checking the set hypothesis. In the questionnaires the set of questions framed for the specific purpose of data collection through the industries related to the automobile sector. The data collected through the responses of the questions forms the basis of understanding the problem or explore the idea set by the objective. In the first phase, out of the 122 questionnaires, 64 partially filled and 58 complete filled-up questionnaires were received. The complete filled questionnaire were considered for this data analysis. This gives an overall response rate of 47.54%. To increase the response rate, a reminder was sent to each of the companies, personal calls were also made in some cases. A response rate of above 20% is considered desirable for survey findings (Yu and Cooper, 1983; Kalpande et al, 2012). Malhotra and Grover (1998) have also suggested a response rate of 20% for positive assessment of the surveys. On the basis of responses data was analysed and considered for further analysis.Researcher has divide all responses in four categories depending on their nature of work in automobile sector. These four categories are automobile manufacturing industries, automobile ancillary unit, automobile parts manufacturing industries and automobile parts supplier units. These key performance indicators are derived from a review of an existing literature and empirical evidence based on practitioner's reflections. The sub-factors which were advocated by these studies are scored dichotomously (Yes or No) by respondents of the automobile industries. In this survey researcher collects the responses form 58 respondents. The identified sub factor are economic benefit from new market opportunities, enhance profit through resource utilization and waste minimization, improve organizations environmental performance by green procurement and audit, offset financial and environmental risk, improve market share by environmental accounting and lastly GARP practices with no cost.Considering these, environmental sub factor analysis is carried out by setting the hypothesis statements.

Hypothesis Testing and Result

A formalized hypothesis will force to think about what results one should look for in an experiment. Ahypothesis, which is a provisional formulation, plays significant role in empirical or socio-legal research. It not only navigates research in a proper direction but also contributes in testing or suggesting theories and describing a social or legal phenomenon. To formulate a research hypothesis is an important step in the scientific method because this determines the direction of the study.Hypothesis testing concerns on how to use a random sample to judge if it is evidence that supports or not the hypothesis. Hypothesis testing is a crucial procedure in statistics and evaluates two mutually exclusive statements. Hypothesis testing determine the

best statement supported by the sample data. The hypothesis is based on available information and the investigator's belief about the population parameters. The specific tests considered here are called chi-square tests and are appropriate when the outcome is dichotomous.

The chi-square (χ^2) is probability distribution and assess whether the pattern or distribution of responses in the sample "fits" a specified population distribution. In the test statistic each of the response categories as observed frequency and expected frequency. The χ^2 testcompare the observed frequencies in each response category to the frequencies expected. A Chi square test will also be performed on the data set, providing that at least 80% of the cell have an expected frequency of 5 or greater, and that no cell has an expected frequency smaller than 1.0 (Mukhedkar, 2016).

The χ^2 measures the difference between the observed and expected frequencies and is a quantitative measure. The χ^2 defined $\qquad \chi^2 = \Sigma \Sigma (Oi - Ei)^2 / Ei$

Where,

Oi = Observed frequency in the Cell i

Ei= Expected frequency in the Cell i

The decision rule for the χ^2 test depends on the level of significance and the degrees of freedom (df). The level of significance is considered as 5% and the degrees of freedom is calculated by:

Degree of Freedom (df) = (k-1) where, k = The number of response categories.

If the null hypothesis is true, the observed and expected frequencies will be close in value and the χ^2 statistic will be close to zero. If the null hypothesis is false, then the χ^2 statistic will be large.

Analysis and Interpretations

Researcher need to scrutinize previous work and select an experimental design which helps to find that either accept or reject the hypothesis. The rejection of the null hypothesis indicates that the differences have statistical significance and the acceptance of the null hypothesis indicates that the differences are due to chance. Sothere is need to put two possible hypotheses i.e. Null Hypothesis and Alternative Hypothesis

H$_0$: (Null Hypothesis): Economic Factors Does Not Affect GARP Performance

H$_1$: (Alternative Hypothesis): Economic Factors Affect GARP Performance.

The Fisher Exact Probability Test is also applied to get the more accurate results. Generally it will be carried out when some frequencies are less than five. The p-value and χ^2 value is calculated by the Chi- Square Test Association in MINITAB-17. The Result Sheet shows the detailed summery generated from the result session. As discussed in previous section χ^2 test depends on the level of significance and the degrees of freedom. For 95% of confidence level and 3 degree of freedom the calculated value of χ^2 is 10.003 and it is very high than the Table value 7.81.

The Results are:The Table value $\chi^2{}_{0.05}$= 7.81 for 95% of confidence level and 3 degree of freedomand $\chi^2{}_{Cal} = 10.00 \geq \chi^2{}_{(0.05 \text{ Table value})}$

Therefore, H$_1$ is Accepted, i.e Economic factors affect GARP performance.

Hence, this hypothesis is validated and proved.

——————— 20/05/2019 11:23:32 ————————————————————

Chi-Square Test for Association: Worksheet rows, Worksheet columns

```
Rows: Worksheet rows   Columns: Worksheet columns

              Automobile  Automobile                        Automobile
            Manufacturing  Ancillary  Automobile Parts         Parts
                   Indust      Unit:    Manufacturing    Suppliers:  All

1                    18         80               61            92  251
                  17.31      69.24            69.24         95.21
                 0.0275     1.6717           0.9809        0.1080

2                     6         16               35            40   97
                   6.69      26.76            26.76         36.79
                 0.0711     4.3256           2.5383        0.2795

All                  24         96               96           132  348

Cell Contents:       Count
                     Expected count
                     Contribution to Chi-square
```

Pearson Chi-Square = 10.003, DF = 3, P-Value = 0.019
Likelihood Ratio Chi-Square = 10.468, DF = 3, P-Value = 0.015

Conclusion

Green accounting and reporting practices are in the bourgeoning stage and there should strict rules for ensuring the level of compliance. The products and processes of automobile industries are a significant source of environmental impact. Its evolution for sustainable manufacturing performance through the lens of economic factor is carried out in this paper. It is observed that the environmental factor and sub factor are significantly contributing for GARP performance in organisation. This study was find out the major economic parameters reported by Indian automobile industries as part of their environmental reporting practice.

Limitations of the Study

The sample selected for the study suffers from many constraints. This study is carried out for the industries related to automobile sectors only. The selection of respondents was based on their willingness to participate. Present study focuses merely on economic factor of GARP however, the other dimensions i.e social and environmental can be consider in next paper.

References

Abdel-Rahim, Heba YM, Yousef M, Abdel-Rahim, 2010, Green accounting – a proposition for EA/ER conceptual implementation methodology, Journal of sustainability and green business, No. 1., Vol. 5, pp. 27-33.

Gaudillat, P.F., Antonopoulos I. S., Dri, M., Traverso, M., Canfora, P., 2017, Best environmental management practice for the car manufacturing sector, JRC Science for Policy Report EUR 28937 EN, 2017. ISBN 978-92-79-77070-8, doi:10.2760/202143, JRC109752

Kalpande, S. D., Dandekar, M. D., Gupta, R. C.; 2012, FrameworkofTQM implementationinsmall businessesof an industriallybackwardregion: A

concept,*PerformanceImprovementJournal, WileyOnlineLibrary*, Vol.51,No.7,2012,pp.07-13.

Malhotra, M. K. and Grover, V., 1998, An assessment of survey research in POM: from constructs to theory, *Journal of Operations Management*, Vol. 16, No. 4, pp. 407–425.

Mukhedkar, D. K., A Study of total productive maintenance & its impact on

Organization's performance for Nashik zone industry, PhD Thesis, North Maharashtra University, Jalgaon, 2016.

Perez, Esther A., 2007, Environmental management systems as an embedding mechanism: a research note, *Accounting, Auditing & Accountability Journal*, No. 3 Vol. 20, pp. 403-422.

RadiahOthman, HaslindaYusoff, Normahiran Yatim, 2013, Strategic Framework for Green Accounting and Reporting, Asia-Pacific Management and Business Application, No. 3, Vol. 1, pp. 183 – 200.

ShavitaDeshwal, 2015, Green accounting and practices, *International Journal of Applied Research*, No. 8, Vol. 1, pp 683-684.

SeowChian Ng, Nor Aziati Abdul Hamid, Sha'riMohd Yusof, Green manufacturing performance measure for automobile manufacturers, *International Conference on Industrial Engineering Management Science and Application (ICIMSA), pp*. 1-5, 2017.

Yu, J. and Cooper, H., 1983, A quantitative review of research design effects on response rates to questionnaires, *Journal of Marketing Research*, Vol. 36, pp. 36–44.