



HUMAN CAPITAL QUALITY AND ENVIRONMENTAL EXPENDITURES OF SELECTED FIRMS IN NIGERIA

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Abstract

Human capital resource is seen as a crucial asset in every entity, and in many organisations. It constitutes the most important asset with capacity to adapt to various situations and provide solutions to complex problems. One of such complex areas is environmental concerns and their valuation. This work was conducted to assess the association amongst firms' human capital quality and their environmental expenditures. The work employed panel data technique and the quantitative method since the work relied on historical data generated from yearly (annual) reports and accounts of the selected companies. The work used data from Uniliver Plc., Dangote Cement Plc., Union Bank Plc., First Bank Plc., Okomu Oil Plc., and Total E&P for sixteen years (2004-2019). The sample was restricted to companies whose environmental data were disclosed in yearly (annual) reports or sustainability reports for the work period. The findings reveal that training budget (one of the proxies for human capital quality) has a constructive but minor association with environmental expenditures, while Tobin Q ratio (another proxy for human capital quality) has a constructive and major association with environmental expenditure. The work comes to conclusion that, the constructive but minor association among training budget and environmental expenditure suggests the need for larger training budgets, given the adaptability of human capital. This could guarantee that environmental expenditures will be more proactively controlled.

Keyword: Human Capital Quality, Environmental Expenditure, Tobin Q., Training budgets.

Introduction

In the face of assertions by managers' that their organization's human capital is their greatest major asset, a small number of them could exist capable to positively state the financial value of it and or put a figure on it in financial terms on how shifts in management style and culture affect the cost of human capital as a resources (Fulmer & Ployhart, 2014). Managerial frontrunners repeatedly recommend the interpretation that their personnel are their greatest central asset (Guest, 2001). On the part of Flamholtz (1999), it understood the description as a notion that collectively human capital is embodied in the employees and it denotes an economic resource of an organization, in this, it is expected to generate future economic benefit for the organization. The incorporated reporting in accounting practice has brought contemporary changes and may in due course lead firms and their advice-givers to know that human capital have its place on a statement of financial

position on firms' financial statements. Corporate frontrunners regularly argue that people are business' greatest assets.

However, the human capital aspect does not revealed in firms' financial statements, and the salaries, wages and training costs are all expensed? The notion of quantifying the cost of an individual member of staff and also make out such a cost on a statement of financial position may appear incredible. Then, information on firms' greatest central assets is unmistakably of value to shareholders and investors. A number of accounting professionals in the accounting productiveness have confidence that human capital should be on the statement of financial position and that the contemporary accounting standards did not get it right. Company law in a number of nations which should surpass accounting standards, needs a fair representation and presentation of the value in a business. However, if its greatest assets are not

recognizes, because the accounting standards do not allow it, the question now, is financial statement fairly represent a fair presentation? (Firer, 2018).

Madhani (2015) stressed that contemporary managers are aware of the benefits gained from a well computed and presented annual report and account. Accordingly, firms that spend heavily in research, brand development and marketing of their intangibles will have core competence and competitive advantage over their competitors in the indicators of corporate financial performance. In Nigeria and Bangladesh, it has been observed that business performance and other variables connected to corporate governance have a significant impact on disclosure of human, skill, and intellectual capital (Rahman et al., 2019). The area of human capital and firm's performance is already rich in literature. Previously Rahman et al. (2019), Abhayawansa and Azim (2014), Rashid (2013), Khan and Ali (2010), and Khan and Khan (2010) focused specifically on the extent of Intellectual capital disclosure in Bangladesh. However, few existing researches have been conducted in the areas of human capital quality and environmental disclosures of companies in Nigeria. The apparent gap in the other scholars and researchers work has necessitated the need for the conduct of this research. This study adds ground-breaking offerings to the other scholars and researchers work in several ways. Firstly, this study identifies the association amongst firms' environmental expenditure and human capital quality of selected firms on the Nigeria Exchange Group Market.

Hypotheses

This study was established on the following null hypotheses:

H₁: There is no major association among average training budget and environmental expenditure for the employees.

H₂: There is no major association among Tobin Q ratio and environmental expenditure of the companies.

The notion of human capital quality/accounting

The most important asset held by most of the successful firms in an organizations is their human resource. Practically every chairman commends the virtue of their firm's human resource in their annual report and account. Then again it all seems to be a part of public relations exercise more than a true belief in the cost of human capital as an asset as it remains to fail to discover its place in any firm's statement of financial position. Brummet et al. 1968 was the frontrunner of human capital accounting and they defined human capital accounting for the first time as "a tool for increasing managerial effectiveness in the

acquisition, development, allocation, maintenance, and utilization of its human resources" (Butt, 2013).

Theoretical Framework

The philosophical approach that this work hinged on is the institutional theory. The work used the understandings from the institutional theory so that the work can relate the performance of companies with a widespread expenditure and disclosure of human capital in their annual report and accounts.

The Institutional Theory

Scott (2001) attributes institutions to social arrangements which function at different degrees of influence with the inbuilt capability to control behaviour. Accordingly, the institution is required to be competent in providing and implementing lawful, ethical, and social limits and distinguishing appropriate from prohibited actions that are capable of helping in authorising actions and players, providing rules on possessions and codes of conduct to control activities in the social order. Namuyondo (2014) outlines institutions as individuals who confront managerial activities that disturb local and social associations, which are capable of influencing interrupted and endless change to necessitate firmness. The government, according to Namuyondo, is perceived as an institution with primary concern to construct a fundamental procedure that may be used to construct modifications that will eventually influence planning in an organisation, with the effect capable of preventing conflict and coinciding roles in the oil and gas firms business. This includes the necessity for societal regulation and instruction which is an obligation to ensure compliance and reward, as well as to penalise unruly behaviour using diverse actions such as discrediting, banishment, police and the law courts (Namuyondo, 2014).

Institutional theory and legitimacy theory are the common used theories (Adams et al., 2016; Ntim et al., 2017). Institutional theory is employed to comprehend the backgrounds used by diverse firms and organizations in firm-specific industry settings (Adams et al., 2016). The theory clarifies how organizations use the related kind of practices and structures to make them detectible as a surviving firm in the eyes of the regulatory bodies and to gain ample legitimacy which is related to the legitimacy theory as well. Carpenter and Feroz (2001) recognized that a firm's acceptance of a particular structure in relation to its rivals is a result of external business environment constraints, the practice which they associated with institutional isomorphism. A vital statement of this theory is that firms embrace new standards and structures in order to gain external approval in the form of reduced cost of

capital and a balanced costs and benefits situation (Clegg & Hardy, 1999).

Empirical Reviews

Rahman et al. (2020) carried out a study in Bangladesh's chemical and pharmaceutical industries, the study looks at how firm performance is affected by intellectual capital disclosure. Twenty-one (21) listed chemical and pharmaceutical companies were utilized as a sample in the study for the years 2016–2017. The study explore the intellectual capital disclosure index developed by Rahman et al. The performance proxy variables are return on assets and return on equity. The study employs content analysis to evaluate the level of disclosure regarding intellectual capital and pooled cross-sectional analysis was used to evaluate the correlation amongst intellectual capital disclosure and firm performance. The finding shows that there is an optimistic and substantial correlation amongst intellectual capital disclosure and firm performance. Further, a detailed analysis of the study indicates that all the constituents of intellectual capital disclosure such as internal capital disclosure, external capital disclosure, and human capital disclosure are also definitely and considerably related with firm performance.

Hamrouni et al. (2015) looked at signaling firm performance through corporate voluntary disclosure. The study examines the connection amongst business voluntary disclosure and firm performance. The analyses indicate an optimistic connection amongst disclosure indexes and company performance proxies. The finding reveals a constructive connection amongst disclosure indexes and performance measures. They make available evidence that the level of voluntary information disclosed in yearly financial report and accounts plays a substantial signaling role of firm performance. But, the magnitude of this role be contingent on the nature of the voluntary disclosure, i.e. whether it involves strategic, financial or corporate governance information. Akinlo and Iredele (2014) studied corporate environmental disclosures and market value of quoted companies in Nigeria. The study investigates corporate environmental disclosures and market value of quoted companies in Nigeria. The study found a substantial constructive link amongst corporate environmental disclosures and market value, measured by Tobin's Q ratio. Ndum and Oranefo (2021) studied human resource cost and financial performance: a study of quoted brewery firms in Nigeria. The work assessed effect of human resource cost on financial performance of listed brewery companies in Nigeria. The work made used of quantitative data and the population of the work comprises five (5) breweries companies listed on Nigerian Exchange Group as at

2019 and the period covers 2007-2019. The data were collected from the published yearly report and accounts of the companies. The finding shows that staff cost has constructive and substantial effect on the net profit margin of the companies in Nigeria, while staff cost has positive and insignificant effect on the return on assets of the firms in Nigeria.

Fulmer and Ployhart (2014) studied our most important asset": a multidisciplinary/multilevel review of human capital valuation for research and practice. In an exertion to clarify the challenges accompanying financial valuation so that intellectuals could begin to move above them, they offer a multidisciplinary review of current study that has existed apprehensive with the approximation, disclosure, and management of the financial value that are related to an organization's of human capital assets. Chukwu et al. (2019) studied market valuation of human capital in Nigerian Banks. This work ascertains the effect of human capital on the market value of banks in Nigeria. This work used a cross sectional research design which relates human capital pointers to the market value of banks in Nigeria. The study made used of data on three (3) proxies of human capital associated to remuneration and staff strength. Relevant financial statement data spanning from 2010-2014 were collected from the yearly report and accounts of fourteen (14) banks listed on the Nigeria exchange group. The regression results of stock price on the human capital indicators reveal that only the proportion of highly paid workers has a significant effect on the market value of firms. The findings submit that the robustness of the valued human capital asset held by banks on their payrolls boosts investor confidence. In order to maintain investor trust, banks that are unable to keep a significant percentage of highly compensated employees inside their workforce structure may consider merging with other banks. The percentage of highly compensated employees at the company level influences the confidence of equity investors, so the study also has implications for bank committee payments.

Passard et al. (2012) studied accounting for human capital: is the balance sheet (statement of financial position) missing something? The study investigates the prevailing opinions regarding the inclusion of human capital in the statement of financial position.

They constructed a survey in Google Docs composed of eight (8) multiple-choice questions and one free response question. The questionnaire include questions about the personal data of the respondents and their opinions about reporting human capital as an asset on firms' statement of financial position. The questionnaire was distributed through email by providing potential respondents a URL link. The data

were obtained via Google Docs in an Excel Spreadsheet. The questionnaire was sent to five hundred (500) individuals in the accounting specialization. The individuals that they administered the questionnaire to were employees of corporations and certified public accounting (CPA) companies. For the 500 questionnaire distributed, one hundred and eighty (180) individuals responded. The study found that eighty seven percent of the people provide opinions that, human capital should not be provided for and stated on firms' financial statements.

Jeroh (2013) looked at human capital accounting and the comparability of financial statements in Nigeria. This work investigates the concept of human capital accounting as it affects financial statement analysis and decision making, since human capital is the main driver of the competitive advantage of firms internationally and Nigeria in specific. A total of one hundred and forty five (145) respondents including investors in the Nigerian capital market, practicing accountants and academics in tertiary institutions in Nigeria were involved in this work. Primary data for the study were gathered using a validated self-structured questionnaire. The descriptive and inferential statistics employed in the analysis of the data acquired at a five percent (5%) level of significance included frequency counts, straightforward percentages, and the chi-square (χ^2). The result shows a significant relationship between human capital accounting and the comparability of financial statements in Nigeria. Butt (2013) studied how to bring human resource asset into statement of financial position without disturbing any financial accounting standards. The aim of the study is why most firms accept the standing of their human resource assets, and no company has up till now tried to display it in its statement of financial position. He explained that there were three main issues that led to this: the first was the lack of a generally accepted method to determine the asset's value; the second was the blatant violation of accepted accounting practices; and the third was the possible tax ramifications. This work gives a solution to all these complications.

Novas et al. (2017) looked at the role of management accounting systems in the development of intellectual capital. The study examines the role of management accounting systems in the development of intellectual capital such as human capital, structural capital and relational capital and the resultant effects on organizational performance. High-level managers of Portuguese enterprises were given questionnaires to complete as part of the study. The data obtained were analysed with the aid of structural equation modeling with AMOS. The finding reveals the role of management accounting systems in the development of

human capital and structural capital. Consistent with earlier studies, the results also demonstrate optimistic and statistically substantial correlations among the three aspects of intellectual capital. Finally, the finding reveals that structural capital show a strong and optimistic correlation among structural capital and organizational success. Although the correlations among management accounting systems and relational capital, human capital and performance, and relational capital and organizational performance are all optimistic, the estimate approach only permitted that a partial validation of the suggested model were not statistically substantial.

Uwuigwe et al. (2011) studied corporate social responsibility disclosures by environmentally visible corporations: a study of selected companies in Nigeria. The study ascertains environmental visibility and corporate social disclosures among listed companies in Nigeria. The study concludes that environmentally sensitive firms disclose several environmental information in the companies' yearly report. Hilorme et al. (2019) studied human capital cost accounting in the firm management system. The study covers the methodological facets of human capital cost accounting, and looked at the resource utility model and alternative costs theory. The comparative characteristic of the models of human capital costs accounting which includes asset model ("costs", chronological cost model) and resource utility model. The selection of the human capital cost accounting model is logical and is contingent upon the extent of managers' authority and duties. The qualities for selecting human capital cost accounting model were measured depending on the grouping of accountability centres. The finding of the study shows that, adding human resources in assets will necessitate monthly reduction or fluctuation in value, and it will eventually result to unwarranted increase of the cost of services they provides.

Methods

The study made use of quantitative data that was generated from yearly financial report and accounts of the companies. The population of the work consists of six (6) randomly selected companies from 6 sectors that registered with the Nigerian Exchange Group as at 2019. The sectors include Consumer Goods (Uniliver Plc.), Industrial Goods (Dangote Cement Plc.), Financial Services (Union Bank Plc. and First Bank Plc.), Agriculture (Okomu Oil Plc.), and Oil and Gas (Total E&P). Generally, the six listed firms on the Nigeria Exchange group were used with sixteen-year period data (2004-2019). The sixteen years period was chosen basically to carry out a balanced panel while the 6 cross sectional sectors of companies were the companies that provides the data within the time frame

of the study. Therefore, the data are time series and cross section (Panel). Since no studies has looked at environmental expenditure, the researchers used environmental disclosures extant literatures in the review of other scholars and researchers work as a base to their argument and judgment. This is because the expenditures are the environmental costs that were disclosed in the yearly reports and accounts of the companies.

Method of Data Analysis

Following the lead of similar studies, the study employs a single econometric model to achieve the findings. The first econometric model examines the Panel Regression, the second model examines the stationarity of the variables by applying panel unit root test using the Augmented Dickey-Fuller (ADF) test in line with Dickey and Fuller (1979 and 1981).

Panel Regression

The standard regression outputs were estimated in two sections which includes the coefficient findings and the summary statistics.

Panel Regression Tests

Table 1: Comparism of Pooled, Fixed and Random Effects Estimates

Variables	Pooled Estimates		Random Effects		Panel OLS (Fixed effects)	
	Coeff	Prob.	Coeff.	Prob.	Coeff.	Prob.
C			-6.67797	0.9158	56.06374	0.7915
TB	558359.2	0.0000	-2.72388	0.8706	1.372977	0.1397
TQ	112525.3	0.0000	-12.2387	0.8712	11.86584	0.0000
R ²	0.722114		0.46745		0.64946	
F-Test			0.763805		24.07896	0.000000
DW	0.107365		0.870998		2.965156	

Source: Author's computation, E-views 10.0

Table 1 show findings of the panel analyses of Pooled, Fixed and Random Effects Estimates of the predictor variables and criterion variable of the study.

Hypotheses:

$H_0: \beta > 0$ (there is unit root in the series).

$H_1: \beta_0 - \beta_1 < 0$ (the series are stationary)

The hypothesis were tested on the basis of t-statistic of the coefficient

Decision rule: Reject H_0 if test statistic is higher than critical values, otherwise do not reject.

Data Presentation

The analyses below were performed to capture the pooled estimates fixed, and random effects of the models. More so, analysis on the Panel Augmented Dickey-Fuller tests, Granger Causality Tests and the Co-integration tests were performed and stated in this work.

Panel Regression Tests

The researchers, using the panel regression analysis, examined the model based on the pooled, fixed effects and random effects. The choice of best fit among the Variables is made possible using the Hausman test.

Table 2 Regression Assumption Tests

Tests of Multicollinearity

Variance Inflation Factors

Date: 13/06/20 Time: 02:09

Sample: 1 3000

Included observations: 3000

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	9.901211	72.98710	NA
TB	2.151210	89.11318	1.492445
TQ	5.141210	1.664540	1.1130007

Source: Author's Computation, E-views 10.0

Variance Inflation Factors (VIF) from table 2, were method of measuring the level of collinearity between the regressors in an equation. VIF show how much of the variance of a coefficient estimate of a regressor has been inflated due to collinearity with the other regressors. They were calculated by simply dividing

the variance of a coefficient estimate by the variance of that coefficient had on other regressors not been included in the equation. As shown in the table above, none of the Variables has a VIF value exceeding 10 and hence all the variables are upheld in the regression model.

Table 3: Serial Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	431.8422	Prob. F(2,151)	0.5431
Obs*R-Squared	455.8182	Prob. Chi-Square(2)	0.1330

Source: Author's computation, E-views 10.0

The analysis above shows that there is probability value of (0.5). Clearly, the result shows that there is the absence of serial autocorrelation.

Table 4: Ramsey RESET Test

Ramsey RESET Test

Equation: REGRESSION_1

Specification: ENVE C TB TQ

Omitted Variables: Squares of fitted values

	Value	Df	Probability
t-statistic	6.31257	140	0.0065
F-statistic	151.5994	(1, 140)	0.0050
Likelihood ratio	6.7794	1	0.0051

Source: Author's computation, E-views 10.0

In table 4 above, the Ramsey RESET test were performed to check for the model misspecifications. The performance of the Ramsey RESET test on the model shows low probability values of 0.0065 which is lesser than 0.05. This means that there were misspecification in the model.

Table 5: Hausman Tests

Correlated Random Effects-Hausman Test
 Equation: Untitled
 Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.718071	4	0.0055

Source: Author's computation, E-views 10.0

A widely used class of tests in econometrics is the Hausman test. The underlying idea of the Hausman test is to compare two sets of estimates, one of which is consistent under both the null and the alternative and another which is consistent only under the null hypothesis. A large variance among the two groups of estimates is taken as evidence in favour of the alternative hypothesis. Precisely, the Hausman test

helps to make a choice between fixed and random effects model fits. The null hypotheses posits that the random effect is an appropriate model fit while the alternative posits that the fixed is the appropriate model fit. The analyses from table 5 above, indicate that the fixed effect model of the panel data analysis is the appropriate model than the random effect model to analyses the results.

Table 6: Unit root property test Augmented-Dickey Fuller Tests Results

Coefficients	ADF Values	Probability	Comments
ENVE	432.472	0.0000	I(0)
TB	76.675	0.0001	I(0)
TQ	63.8818	0.0013	I(0)

Source: Authors Computation E-views 10.0

The table 6 above, reveal the findings of the ADF Panel Unit Root Tests of all the Variables. The findings are establish to be integrated of the same order. At first

difference, the p-values are establish to be lesser than 5% stated as the degree of significance. The whole variables are shown to be stationary.

Table 7: Co-integration Test

Pedroni Residual Cointegration Test

Series: ENVE TQ TB

Date: 13/06/20 Time: 11:26

Sample: 2004 2019

Included observations: 3000

Cross-sections included: 6 (1 dropped)

Null Hypothesis: 1 cointegration eqn(s)

Trend assumption: No deterministic trend

User-specified lag length: 1

Newey-West automatic bandwidth selection and Baretlett kernel

Alternative hypothesis: common are coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-0.544540	0.0070	-0.524050	0.706
Panel rho-Statistic	-0.332485	0.3646	0.64206	0.5711
Panel PP-Statistic	-1.368044	0.0856	-1.144540	0.123000
Panel ADF-Statistic	-0.136476	0.4853	-0.60143000	0.1136

The co-integration reveals if or underwise the variables have a long-term relationship. As the table above shows in the model using the panel v-Statistic results, the co-integration analysis met the required criteria for the acceptability of the result.

Table 8: Heteroskedasticity Tests

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.368287	Prob. F(8,151)	0.6449
Obs*R-Squared	26.01264	Prob. Chi-Square(8)	0.0010
Scaled explained SS	113000.520	Prob. Chi-Square(8)	0.0000

Source: Author's computation (2020).

Table 8 above, tests whether the variances of the models were the same over time. The rule of thumb is the use of the probability being more than 0.05. Heteroskedasticity is lack of constant error variance

(Gujarati, 2013). This is a problem that makes the standard errors biased leading to bias or invalid test statistics and confidence intervals (Wooldridge, 2010). There is Heteroskedasticity in the model since the probability value is 0.0010, which is less than 0.05.

Table 9: Granger Causality Tests

Pairwise Granger Causality Tests

Date: 04/23/20 Time: 02:18

Sample: 2004 2019

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
TB does not Granger Cause ENVE	2998	4.10280	0.0023
ENVE does not Granger Cause TB		0.26823	0.7648
TQ does not Granger Cause ENVE	2998	77.1804	0.0076
ENVE does not Granger Cause TQ		0.16632	0.8468
TB does not Granger Cause ENVE	2998	3.43399	0.1330
ENVE does not Granger Cause TB		0.68893	0.5026
TQ does not Granger Cause ENVE	2998	0.37655	0.6864
ENVE does not Granger Cause TQ		0.58785	0.5559

Source: Author's computation (2020).

Table 9 above, show the results of the Granger Causality Tests and the tests test for the direction of cause between two variables. The result shows that there is unidirectional causality between ENVE, TB and TQ.

Tests of Hypotheses

Having chosen the *fixed effect* model as a better fit model, the analysis were established on the fixed effect model. The result shows that $R^2 = 65\%$ of the variations in the criterion variable are explained by the variations in the predictor variables. F-test indicates that the overall model is statistically significant at 5% level while the Durbin-Watson statistic shows that there is no presence of serial autocorrelation.

H₁: The result shows that TB is positively correlated to the ENVE over the period. As the TB increases by a unit, the ENVE increases by 1.372977 units and vice versa. Again, the result shows that TB is statistically insignificant at 5% level of significance. We therefore reject the alternative hypothesis, accept the null and conclude that there is no significant association among TB and ENVE for the time frame under study.

H₂: The result shows that TQ is also positively correlated to the ENVE for the time frame of study. As the TQ increases by a unit, the ENVE increases by 11.86584 per cent and vice versa. Again, the result shows that TQ is statistically significant at 5% level of significance. We therefore accept the alternative hypothesis, reject the null and conclude that there is a

significant association among TQ and ENVE for the time frame under study.

Discussion of Results

The work has been able to dissect the association among the human capital quality and environmental expenditures of the 6 selected companies of the Nigerian Exchange Group, covering 16 years (2004-2019). As shown above, the result shows that training budget of the companies have a constructive but minor association with environmental expenditure. This means that although the companies spend on trainings, these expenditures are not enough to alter the environmental accounting procedures. The environmental accounting procedures are still the same even with the trainings (human capital development). This finding agrees with the findings of Uwuigwe *et al* (2011) who's discovered that human capital, through the trainings offered, have constructive and major impact on the environmental accounting of the companies they sampled.

Again, the study found that Tobin Q ratio has a constructive and major association with environmental expenditure. Also, the finding agrees with that of Rahman *et al* (2020) who found a constructive and major association among intellectual capital disclosure and company performance. Further, an in-depth analysis of the study indicates that all the constituents

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- of intellectual capital disclosure such as internal capital disclosure, external capital disclosure, and human capital disclosure are also definitely and considerably related with company performance. Furthermore, the finding agrees with the findings of Jeroh (2013) whose study reveals a significant relationship between human capital accounting and the comparability of financial statements in Nigeria. Again, the finding agrees with the findings of Akinlo and Iredele (2014) who found a substantial optimistic association among corporate environmental disclosures, measured by Tobin's Q.

Conclusion

The study reveals a constructive association among training budget, Tobin Q and environmental expenditure. However, a minor association is seen among TB and ENVE. Further study reveals panel ADF was stationary at first differencing for all the variables. The co-integration test also shows a long term association among the criterion and the predictor variables. The Hausman test reveals that the fixed effect model was an appropriate fit and therefore, employed to test the hypotheses of this work. This work concludes, that there is a constructive and major association among training budget, Tobin Q and environmental expenditure, but these companies need to increase their training budget to ensure the impact would be felt by their human capital.

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