

Effect of Human Resource Accounting on Public Sector Performance: A Study of NNPC Exploration and Production Limited

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Abstract

This research analyzed how human resource accounting (HRA) affects public sector performance of NNPC Exploration and Production Limited (NNPC E&P Ltd) in Benin City, Nigeria. This study analyzed the impact of human resource cost accounting on service delivery, the impact of human resource investment and capitalization on operational efficiency, the impact of human resource value disclosure on accountability, and the impact of human resource asset valuation on organizational effectiveness. This study analyzed the combined impact of the four practices on public sector performance. Guided by the Human Capital Theory and Lev and Schwartz (1971) human capital valuation model, the study was descriptive in nature. Using Yamane's formula, a sample of 300 management and senior staff was drawn using proportional stratified random sampling. Data was collected using a structured five-point Likert scaled questionnaire. The first four research questions were addressed using simple linear regression, while the last research question was addressed using multivariate analysis of covariance (MANCOVA). The study results showed that human resource accounting practice cost accounting, practice of human resource investment and capitalization, practice of human resource value disclosure, practice of human resource asset valuation, all have a positive and significant impact on service delivery, operational efficiency, accountability, and organizational effectiveness, respectively. The MANCOVA identified a highly significant joint effect (all $p < 0.001$), composite regression estimated 28.8% of the variance in overall performance and practice of human resource value disclosure, while the most impactful practice was human resource accounting. The findings of the study suggested that human resource accounting has a considerable impact on the performance of the public sector. It was also suggested that NNPC E&P Ltd should formalize the practice of human resource accounting and should focus on human capital disclosures and valuation in accordance with IPSAS.

Keywords: Human resource accounting, Human Capital, Public Sector Performance, Disclosure, Nigeria

Introduction

The quality of governance in a country is reflected in the quality of its public service. Human resources constitute the core of public service quality, and resource accounting is a way of measuring public service quality. The economic assessment of human resources is the most effective way of measuring the quality. Human Resource Accounting (HRA) is the process of identifying, measuring and communicating information about an organisation's human resources to facilitate effective management. However, in most public enterprises in Nigeria, spending on human capital is still treated as an expense that is incurred and consumed within an accounting period rather than a capital investment. This is a clear disconnect between human capital and organizational performance. With Nigeria's continuing Civil Service reform and its adoption of International Public Sector Accounting Standards (IPSAS), there is a growing need to recognize human capital as an organizational asset.

However, those who design the reforms often do not have local evidence addressing the relationship of specific HRA practices to performance of commercially oriented state enterprises. There is a gap in evidence on the HRA – performance relationship in strategic upstream oil and gas public enterprises. NNPC Exploration and Production Limited (NNPC E&P Ltd) provides an interesting case to evaluate the relationship of interest. The aim of this paper is to evaluate the relationship between human resource accounting and the public sector performance of NNPC E&P Ltd. Specifically, the objectives include: (i) to evaluate the impact of human resource cost accounting on service delivery; (ii) to assess the impact of human resource investments and human resource capital on the operational efficiency; (iii) to analyze the impact of human resource value disclosure on accountability; (iv) to assess the impact of human resource asset valuation on organizational effectiveness; and (v) to evaluate the combined impact of the four practices on public sector performance.

The following null hypotheses were formulated and tested at $p \leq 0.05$:

H₀₁: Human resource cost accounting does not have a positive impact on service delivery.

H₀₂: Human resource investments and human resource capitalization do not have a positive impact on operational efficiency.

H₀₃: Human resource value disclosure does not have a positive impact on accountability.

H₀₄: The valuation of human resource assets does not have a major impact on the effectiveness of an organization.

H₀₅: The four practices of human resource accounting in the public sector do not have a significant collective effect.

Literature Review

Human resource accounting for this research comprises four practices, which are closely related, and is described in this way. The first practice, human resource cost accounting, involves recognizing and summing up the costs associated with the recruitment, development, and retention of employees. The second practice, human resource investment and capitalization, involves the consideration of significant costs related to the training and development of employees as a capital asset that can be amortized in the future. The third practice is human resource value disclosure, and it explains how clear, frequent, and comprehensive human capital reporting is to the stakeholders. Finally, human resource asset valuation is the application of a standardized approach to derive the financial value of the human capital. In regard to the framework of this research, the dependent variable, public sector performance, is broken down into service provision, efficiency, and effectiveness, as well as accountability.

Theoretical Framework

The study relies on Becker's (1964) Human Capital Theory and Lev and Schwartz's (1971) human capital valuation model. Human Capital Theory posits that investing in people is a productive investment that is equivalent to investing in physical capital. It provides justification for treating human resource cost accounting and investment more as accounting issues and less as general overhead. The Lev and Schwartz model provides the rationale for measuring the four practices of human resource accounting based on the mechanisms that drive performance. In this case, the practices of cost accounting and capitalization relate to the actual human capital expenditure, while the practices of value disclosure and asset valuation relate to the actual human capital expenditure. These practices establish a basis on which stakeholders can demand accountability and evaluate the organization's performance. The Resource-Based View (Barney, 1991) provides an additional perspective, as it regards a well-accounted workforce as a source of sustained competitive advantage.

Empirical Review

The existing literature on Nigeria has begun to establish a connection between HRA practices and performance. Akpan and Udo (2025) maintained a positive association between measuring the costs of human resources and productivity, while Adeyemi and Ogunleye (2024) observed improved job performance in civil servants with the capitalization of workforce investments.

The work of Arimie and Orobosa (2023) resulted in the establishment of the accountability of human capital in public sector financial reporting, while Falaye and Shamaki (2024) identified a connection between value disclosure and employee performance in a Nigerian federal revenue agency. Notwithstanding the above, the majority of the studies focused on the examination of isolated practices and singular outcomes, dealt with contexts outside the strategic upstream oil and gas, and most importantly, employed few, if any, multivariate techniques that would allow the differentiation of the unique from the associated effects. This research aims to address these limitations by analyzing HRA as a bundle of four practices and focusing on a four-dimensional performance framework in the context of a strategic Nigerian public enterprise.

3. Methodology

The study employed a descriptive survey research design of a quantitative nature. This design was deemed suitable for systematically describing HRA practices and their relationship to public sector performance as they naturally occur. The study was conducted at the Benin City headquarters of NNPC E&P Ltd. The study's target population consisted of management and senior staff in the finance and accounts, corporate planning and strategy, human resources, and internal audit directorates. These staff members, of which there are approximately 1,200, have direct involvement in HRA policy formulation, implementation, or enforcement. Based on Yamane's formula and a 5% margin of error, 300 respondents were identified and allocated to the four directorates using proportional stratified random sampling. A stratified, self-administered, and structured questionnaire was deployed to collect data. The questionnaire comprised 44 items and employed a five-point Likert scale. The Likert scale's sub-scales were derived from other validated instruments. Expert reviews improved content validity of the questionnaire, while a pilot study ascertained test reliability. The pilot study, which assessed all eight sub-scales, recorded Cronbach's alpha coefficients of 0.853 to 0.895, and reliability was thus considered to be achieved. Hypotheses one through four were each tested using simple linear regression, and each of the four HRA practices and the related performance dimension was examined. To test hypothesis five, a supported composite multiple regression was utilized, and age, years of service, level of education, and directorate

were set as covariates, and a multivariate analysis of covariance was employed. The following regression models were formulated:

$$SD = \beta_0 + \beta_1 HRCA + \mu$$

$$OE = \beta_0 + \beta_1 HRIC + \mu$$

$$ACC = \beta_0 + \beta_1 HRVD + \mu$$

$$OEF = \beta_0 + \beta_1 HRAV + \mu$$

$$PSP = \beta_0 + \beta_1 HRCA + \beta_2 HRIC + \beta_3 HRVD + \beta_4 HRAV + \mu$$

where SD = service delivery; OE = operational efficiency; ACC = accountability; OEF = organizational effectiveness; PSP = public sector performance; HRCA = human resource cost accounting; HRIC = human resource investment and capitalization; HRVD = human resource value disclosure; HRAV = human resource asset valuation; β_0 = constant; and μ = error term. The decision rule was to reject the null hypothesis where $p \leq 0.05$.

Results

Table 2: Respondent Demographic Characteristics

Variable	Category	Frequency	Percentage
Gender	Male	175	58.3%
	Female	125	41.7%
	Total	300	100.0%
Age Bracket	Below 30 years	78	26.0%
	30–39 years	117	39.0%
	40–49 years	69	23.0%
	50 years and above	36	12.0%
	Total	300	100.0%
Highest Qualification	Bachelor's Degree	21	7.0%
	Postgraduate Diploma/Master's	279	93.0%
	Total	300	100.0%
Years of Service	Less than 6 years	54	18.0%
	6 years and above	246	82.0%
	Total	300	100.0%

Source: Field Survey, 2026

Interpretation: Male (58.3%), Female (41.7%): Male respondents are in the majority, but the representation mirrors the gender distribution in the Nigerian banking sector. Women occupy the majority of roles in banking, especially at the senior management and professional levels. The majority age group most likely contains respondents that have sufficient experience, are still in the sector and have enough experience to respond. The respondents in the age group of 30 – 49 years (62.0%) responded to the survey. Postgraduate (93.0%): This is a high percentage of respondents and is a result of the Nigerian banking sector which demands high qualifications for specialist and management roles. This improves the quality of the responses related to corporate governance and risk management. The majority of the respondents have a lot of experience and this shows that the majority of the respondents have a lot of experience and this improves the quality of the responses.

Test of Hypotheses One to Four

Each HRA practice was regressed on its corresponding performance dimension. Table 2 summarises the results.

Table 3: Summary of Simple Regression Results (H_{01} – H_{04})

Predictor → Outcome	B	β	t	R ²	F(1,298)	p
HRCA → Service Delivery	0.494	0.464	9.046	0.215	81.83	0.000
HRIC → Operational Efficiency	0.577	0.498	9.909	0.248	98.19	0.000
HRVD → Accountability	0.647	0.554	11.480	0.307	131.78	0.000
HRAV → Organizational Effectiveness	0.524	0.485	9.569	0.235	91.57	0.000

Source: SPSS Output (2026).

All four predictors exerted a significant, positive effect on their corresponding performance dimension ($p < 0.001$), leading to the rejection of H_{01} through H_{04} . Human resource value disclosure recorded the strongest bivariate relationship, explaining 30.7% of the variance in accountability.

Test of Hypothesis Five

The joint effect was tested using MANCOVA, controlling for demographic covariates. Table 3 reports the multivariate tests.

Table 4: MANCOVA Multivariate Tests (Wilks' Lambda)

Effect	Wilks' Λ	F(4,286)	p	η^2
Human Resource Cost Accounting	0.775	20.778	0.000	0.225
Human Resource Investment & Capitalization	0.762	22.297	0.000	0.238
Human Resource Value Disclosure	0.680	33.664	0.000	0.320
Human Resource Asset Valuation	0.755	23.221	0.000	0.245

Source: SPSS Output (2026). Covariates: age, years of service, educational qualification, directorate.

Every HRA practice exerted a statistically significant multivariate effect on the combined performance vector, with value disclosure recording the largest effect ($\eta^2 = 0.320$). A supporting composite regression (Table 4) confirmed this pattern.

Table 5: Composite Multiple Regression

Predictor	B	B	t	p
(Constant)	1.108		7.486	0.000
Human Resource Cost Accounting	0.157	0.269	5.432	0.000
Human Resource Investment & Capitalization	0.150	0.249	5.031	0.000
Human Resource Value Disclosure	0.198	0.336	6.811	0.000
Human Resource Asset Valuation	0.122	0.226	4.530	0.000
R ² = 0.288	Adj. R ² = 0.278	F(4,295) = 29.82	p = 0.000	

Source: SPSS Output (2026).

The four practices described indicated that 28.8% of the variance in public sector performance was explained ($F(4,295) = 29.82$, $p < 0.001$), all remaining predictors retained significant partial coefficients, and of these, value disclosure was the largest contributor ($\beta = 0.336$). As both the MANCOVA and the composite regression were significant, H_{05} was rejected.

Discussion of Findings

The result of the positive influence of human resource cost accounting on service delivery ($\beta = 0.464$) supports an important aspect of Human Capital Theory. It proposes that the measurement and analysis of personnel costs enables the organization to account for and defend the benefits of personnel investments and their resultant service delivery. This finding is in alignment with Akpan and Udo (2025) and expands their research to the upstream oil and gas public sector. The positive influence of the investment and capitalization of human resources on the operational effectiveness of a service delivery ($\beta = 0.498$) is in alignment with the Resource-Based View, and the framing of training as a capital investment rather than a sunk cost, serves to provide the firm with the incentive to account for and maximize the value of that resource, echoing Adeyemi and Ogunleye (2024). It is also in alignment with the value disclosure-full accountability ($\beta = 0.554$) and suggests that the disclosure of value serves to provide an account of the investment of public resources on behalf of the workforce, a finding also supported by Arimie and Orobosa (2023). The positive influence of asset valuation on the effectiveness of a service delivery ($\beta = 0.485$) lends support to Lev and Schwartz (1971). Lastly, the substantial total effect supports the central argument of the study, that the four practices viewed in combination show that the greatest leverage for reform in the public sector is focused on the value of disclosure among the reporting practices.

5. Conclusion and Recommendations

The study shows that human resource accounting is critical to public sector performance in the Nigerian upstream oil and gas public enterprise represented by NNPC E&P Ltd. The costing, capitalization, disclosure and valuation of human resources are technical exercises that strongly influence service delivery and operational efficiency as well as accountability and effectiveness. The individual practice is important, and the collective practice is more important, and the practice is a system in which disclosure of human capital value primarily drives the system at the highest level. The relatively poor scores in the disclosure and valuation of human resources represent a significant and surmountable challenge of performance for the organization in fulfilling its stewardship of public resources.

Based on this, the study suggests the following:

- i. the aim of institutionalizing a formal human resource cost accounting system should be to isolate and report costs of recruitment, selection and onboarding as a separate category to enable service-delivery budgeting;
- ii. capitalisation of significant training and development expenditures as human capital investments along with the establishment of a system to track return on investments should be adopted as an accounting policy;
- iii. as there is a strong positive relationship between accountability and disclosure, management should implement an aligned IPSAS human capital disclosure framework and provide varying quantitative assessments of the value of the workforce in their annual reports on a consistent basis;
- iv. a recognised human asset valuation model should be adopted and its outputs used to aid retention, succession and deployment decisions; and
- v. as the practices sustain and reinforce one another, all four should be regarded as interdependent, with the disclosure practices regarded as the highest leverage entry points. This evidence should also be used as a basis for designing public sector accounting reforms for commercially oriented state enterprises.

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