



**THE STRATEGIC ROLE OF SOCIAL PERFORMANCE
IN ENHANCING EMPLOYEE PRODUCTIVITY:
EVIDENCE FROM THE PHARMACEUTICAL MANUFACTURING SECTOR**

Oloruntoba OYEDELE

Department of Accounting Science

Walter Sisulu University, South Africa

oyedeoloruntobar@gmail.com

Abstract

This study investigates the impact of social performance (SP) practices on employee productivity (EM-PR) in the pharmaceutical manufacturing sector, focusing on key dimensions such as health and safety, inclusive recruitment, and training and development. Drawing on primary data collected from 152 employees across pharmaceutical firms, the study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate the relationships between SP constructs and operational employee outcomes. The measurement model demonstrated strong reliability and validity, with satisfactory Cronbach's alpha, composite reliability, and average variance extracted (AVE) values. Structural model results indicate that SP practices positively and significantly influence employee productivity, with training and development showing the strongest path coefficient. The model yielded substantial R² values and moderate to large effect sizes (f²), confirming the predictive relevance of the constructs. These findings underscore the strategic role of social responsibility in enhancing workforce performance in technically intensive industries. The study recommends that pharmaceutical firms institutionalize SP practices as core elements of their operational strategy, while policymakers should incentivize socially responsible behavior through regulatory support and industry standards. Future research should adopt longitudinal approaches and broaden sectoral coverage to validate the generalizability of these insights.

Keywords: *Social Performance, Employee Productivity, Pharmaceutical Manufacturing, Inclusive Recruitment, Training and Development, PLS-SEM.*

JEL Codes: M14, O32, J24, L65.

1. Introduction

The importance of social performance (SP) in shaping organizational effectiveness has increasingly gained recognition, especially in sectors where human capital plays a critical role in value creation (Branicki et al., 2020). Social performance, broadly encompassing human-centered policies such as employee health and safety, inclusive hiring practices, and continuous workforce development, may significantly enhance employee productivity, operational resilience, and long-term competitiveness (Miska et al., 2021). In the context of developing economies, where regulatory frameworks and enforcement mechanisms may be weaker, organizational-level SP practices often become primary vehicles for delivering social value and improving workplace outcomes (Ofori & Nyuur, 2023). This is particularly salient in Nigeria's pharmaceutical manufacturing industry, where workforce-related challenges intersect with broader institutional voids and infrastructural inadequacies.

Nigeria, the most populous country in Africa with over 200 million people, has witnessed significant industrial expansion in recent years, particularly in its pharmaceutical sector—one of the largest in Sub-Saharan Africa (Ayegba & Dogo, 2022). The Nigerian pharmaceutical industry is estimated to contribute about ₦60 billion annually to GDP and employs thousands of skilled and semi-skilled workers across value chains (UNIDO, 2021). Yet, persistent issues such as limited employee training, poor occupational health standards, and inconsistent implementation of inclusive recruitment policies continue to constrain productivity and hinder the attainment of sectoral development goals (Okonkwo et al., 2023). These challenges make Nigeria an empirically significant context for exploring the role of SP in enhancing employee-level outcomes such as productivity and efficiency.

In recent years, the Nigerian government has implemented regulatory reforms aimed at improving workplace safety and skills development through agencies such as the National Agency for Food and Drug Administration and Control (NAFDAC) and the Industrial Training Fund (ITF). However, empirical studies evaluating the effects of firm-level SP initiatives on employee productivity within Nigeria's pharmaceutical manufacturing sector remain scarce (Ogunbajo & Adebayo, 2022). Given the rising demand for affordable and locally produced pharmaceuticals, especially post-COVID-19, the need for socially sustainable business models that prioritize human resource investment has become more pronounced (WHO, 2023).

Furthermore, the Nigerian labor market is characterized by a youthful and growing workforce, yet firms often face significant barriers in harnessing this demographic dividend

due to underinvestment in employee development and high turnover rates (Ojo et al., 2024). Social performance initiatives, such as structured training programs, health interventions, and fair hiring practices, may offer viable mechanisms for improving workforce outcomes and enhancing firm-level performance. These practices can serve as strategic responses to workforce volatility and low operational productivity, which have plagued several Nigerian pharmaceutical firms (Nwosu & Odu, 2023).

This study seeks to empirically examine the extent to which key SP practices contribute to employee productivity in Nigeria's pharmaceutical manufacturing sector. By employing Partial Least Squares Structural Equation Modeling (PLS-SEM), the study offers a rigorous, data-driven analysis of the relational pathways between social investment and productivity, using firm-level data collected from a sample of Nigerian pharmaceutical manufacturing firms. This methodological approach allows for both explanatory power and predictive accuracy, offering nuanced insights into how social investment strategies may shape operational performance within emerging market contexts.

The contribution of this study lies in its contextual specificity and theoretical relevance. It not only fills a notable empirical gap in the literature on social sustainability in Sub-Saharan Africa but also aligns with Sustainable Development Goal 8, which emphasizes decent work and economic growth. By grounding its analysis in Nigeria's pharmaceutical sector, the study advances a more context-aware understanding of how SP can be leveraged as a productivity-enhancing mechanism in developing economies. Ultimately, the findings may inform policy reforms, guide managerial practice, and shape the design of capacity-building interventions in Nigeria's industrial sector.

2. Literature Review and Hypotheses Development

2.1. Empirical Literature

A growing corpus of empirical research has documented the association between corporate social responsibility (CSR) or social performance practices and employee productivity or in-role performance across diverse manufacturing contexts. For instance, Story and Neves (2015) and Chaudhary (2020) found that internal CSR dimensions, such as employee welfare, training, and workplace safety, were positively related to in-role performance across firms in Asia and Africa, with organizational commitment and job satisfaction serving as partial mediators. Similarly, Kim et al. (2018, 2020) reported that CSR perceptions significantly

increased quality of working life and job satisfaction, further boosting employee task outcomes.

Meta-analytic findings highlight that CSR is moderately to strongly correlated with employee outcomes including quality of work life, job satisfaction, organizational trust, pride, and commitment. Maneethai et al. (2024) report average correlations of approximately 0.54–0.68, with higher relational and instrumental motives reinforcing performance behaviors, especially in hospitality and service-intensive sectors. These results suggest that CSR practices also impact performance indirectly through affective and relational mechanisms.

Sector-specific studies offer further granularity. Şendurur et al. (2025) examined 32 Turkish manufacturing firms and found a positive and statistically significant relation between social sustainability scores and labor productivity over 2015–2019, confirming that social dimensions of sustainability enhance productivity at the firm level. Petreski et al. (2023) also demonstrated that environmental and social practices in transition economies significantly contribute to productivity growth, particularly among low-skilled firms.

In Sub-Saharan and West African contexts, studies from Ghana and Nigeria reinforce these findings. A Ghanaian study of CSR and green innovation in the manufacturing industry showed that employee CSR (such as training and health initiatives) exhibited a large positive effect size (0.668) on sustainable practices and secondary innovation outcomes. In Nigeria, empirical studies (Okere 2024; Adedeji 2023) found that CSR initiatives, especially those involving employee training and welfare, were significantly associated with improved engagement, commitment, and retention among employees of manufacturing firms.

Investigations into human resource-focused CSR (iCSR) in Korea similarly underscore positive effects on sustainable employability and retention, mediated through employment type and job security structures. Kim and colleagues (2021) found that CSR engagement led firms to increase regular employment ratios, thereby improving stable productivity outcomes. A recent ESG-driven HRM study in Indonesian private institutions (Wiyono et al., 2025) reported that social practice constructs significantly influenced employee performance and well-being, further reinforcing the link between social investment and productivity.

While most studies report positive effects, moderating and mediating mechanisms also emerge. Promislo et al. (2012) and Guzzo et al. (2020) emphasize that CSR influences both hedonic and eudaimonic well-being, with job satisfaction, organizational commitment, gratitude, and compassion mediating the CSR–performance link. Story and Castanheira (2019) and He et al. (2019) similarly identify organizational commitment, customer

orientation, and prosocial motivation as partial mediators, whereas perceived organizational support and intrinsic motivation are significant moderators of the CSR-performance relationship.

A number of studies also examine the role of psychological and psychosocial safety in moderating performance outcomes. Research in healthcare and manufacturing indicates that strong psychosocial safety climates (PSC), which reflect health and safety investments and procedural justice, significantly reduce burnout and absenteeism while enhancing engagement and productivity (Dollard et al., 2015–2020). Likewise, psychological safety has been linked to higher innovation, process improvements, and error reporting, all of which contribute to operational performance in technical settings.

2.2. Hypotheses Development

Health and Safety (HS) policies may constitute one of the most tangible elements of social performance practices, especially in technical industries. Empirical research across manufacturing contexts, such as Kenya, Greece, and the UAE, has frequently confirmed that robust HS systems can exert a direct positive influence on employee productivity by reducing accidents, minimizing absenteeism, and improving work engagement (Mdpi, 2023; Dollard et al., 2020; ScienceDirect, 2023). Hence, it may be hypothesized that pharmaceutical firms with well-established health and safety systems are more likely to exhibit higher levels of EM-PR, including timeliness, consistency, and target achievement.

From a behavioral economics perspective, HS investments may also enhance employee welfare and perceived organizational support, thereby increasing intrinsic motivation and effort (Story & Neves, 2015; Guzzo et al., 2020). These motivational pathways suggest that HS can function both as a protective and enabling resource, especially when combined with procedural justice and managerial commitment. This theoretical framing supports the following hypothesis:

H1: Health and safety practices are positively associated with employee productivity in pharmaceutical manufacturing firms.

Inclusive recruitment (IR) and training & development (T&D) represent two additional dimensions of SP that may independently shape the broader latent construct of social performance (SP). Empirical studies in Nigeria's manufacturing and educational sectors have shown that inclusive employment practices significantly enhance employee engagement and retention (Okechi et al., 2024; Okere et al., 2024). Similarly, well-targeted training and

development programs have been associated with improved employee capabilities, satisfaction, and in-role performance (Herjuna et al., 2024; Surya Herjuna & Marhaeni, 2024).

From a resource-based view, IR and T&D may serve as firm-specific intangible assets, enabling workforce alignment with complex operational requirements and thus improving productivity outcomes (Kim et al., 2022; Singh et al., 2023), while also reinforcing HS investments. Together, IR and T&D may load significantly onto the latent SP construct, which in turn can influence EM-PR more strongly than any single sub-dimension. This insight supports:

H2a: Inclusive recruitment and training & development are positively associated with the latent construct of social performance (SP).

H2b: The latent SP construct mediates the relationship between its dimensions (IR and T&D) and employee productivity in pharmaceutical manufacturing firms.

Structural model results outlined in Table 7 demonstrated a significant direct effect of SP on EM-PR ($\beta = 0.263, p = 0.000$), supporting the proposition that composite social performance practices can incrementally boost employee productivity beyond individual practices (Tables 6 and 7). This aligns with meta-analytic findings suggesting that internal CSR initiatives can yield moderate to strong correlations with employee performance and productivity through mediating mechanisms such as commitment and well-being (Maneethai et al., 2024; Chatterjee et al., 2021).

Additionally, high effect sizes associated with constructs like Consistency and Timeliness suggest that SP-driven improvements in work routines and goal orientation may enhance operational efficiency, a critical outcome in pharmaceutical manufacturing environments (Şendurur et al., 2025; Mura et al., 2021). Thus, the following hypothesis series is proposed:

H3a: *Social performance (SP) has a positive direct effect on employee productivity (EM-PR).*

H3b: *Employee productivity (EM-PR) positively influences operational effectiveness, as reflected in higher consistency, timeliness, and target meeting among pharmaceutical manufacturing firms.*

3. Methodology

This study investigates the influence of sustainable practices and employee management on performance outcomes in the Nigerian pharmaceutical manufacturing sector. The empirical analysis relies on a cross-sectional dataset comprising 152 responses collected from middle-

and senior-level employees across 12 large pharmaceutical firms operating in Nigeria. These firms were purposively selected based on their membership in the Pharmaceutical Manufacturers Group of the Manufacturers Association of Nigeria (PMG-MAN), their compliance with environmental and safety standards, and their engagement with workforce sustainability programs. The questionnaire design was informed by constructs validated in previous empirical studies, and the instrument was pre-tested with 18 respondents to ensure clarity and reliability.

Data were collected between January and March 2025, using both physical distribution and electronic survey formats to enhance response rates. All items were measured on a 5-point Likert scale and standardized to reduce measurement bias and meet the assumptions of the Partial Least Squares Structural Equation Modelling (PLS-SEM) approach. Key constructs include Employee Management Performance (EM-PR), Safety Practices (SP), Training & Development, Health and Safety, Inclusive Recruitment, Meeting Targets (MT), Consistency, and Timeliness (TMs). The choice of SmartPLS 4 for analysis is justified given its robustness for complex models involving mediation effects and non-normal data (Hair et al., 2021; Ringle et al., 2020).

Table 1 indicates that the gender distribution shows a majority of female respondents at (63.8%), compared to (36.2%) male respondents. This suggests that women form a larger part of the workforce at Tuyil Pharmaceutical Industry. The implication is that sustainability practices aimed at improving operational efficiency should be gender-inclusive and consider the perspectives of female employees, particularly in areas such as workplace safety, health programs, and green initiatives. Female-dominated teams may also offer unique insights into sustainability approaches that align with both organizational goals and employee well-being.

The job role distribution reveals that Administrative Staffs (30.3%) and Quality Control Staffs (28.3%) make up the highest proportions, followed by Technical/Engineering Staff (21.7%) and Production Staff (19.7%). This balanced representation across departments indicates that sustainability practices must be tailored to meet the operational needs of each unit. For instance, production and technical units may benefit from energy-efficient equipment and waste reduction programs, while administrative and quality control units could implement digital documentation and eco-friendly workplace procedures to improve efficiency.

A majority of respondents hold B.Sc/HND qualifications (48.7%), while (32.9%) have OND/NCE, and (12.5%) possess a Ph.D. This indicates that the workforce is highly educated

and likely to be aware of and responsive to sustainability-related initiatives. A knowledgeable staff base provides an opportunity for management to implement informed and participatory sustainability practices, such as staff-led green committees, continuous training on eco-conscious production techniques, and the use of performance data to support efficiency goals. The data on years of experience with sustainability practices shows that 76.3% of the respondents have 1–3 years of experience, with fewer in the 4–6 years (14.5%) and 7–9 years (6.6%) brackets. Although this measures banking service familiarity, it also reflects a relatively young workforce that is more likely to embrace innovation and change. This openness can be leveraged to introduce sustainability practices that utilize technology, automation, and smart resource management tools to boost operational efficiency across the organization. Younger employees may also champion green initiatives if properly engaged.

Table 1: Demographic Characteristics of Respondents

Variable	Category	Frequency	Percentage
Gender	Male	55	0.362
	Female	97	0.638
	Total	152	1
Job Role	Production Staff	30	0.197
	Quality control Staffs	43	0.283
	Administrative Staffs	46	0.303
	Technical/Engineering	33	0.217
	Total	152	1
Educational Level	SSCE	9	0.059
	OND/NCE	50	0.329
	B.Sc/HND	74	0.487
	PHD	19	0.125
	Total	152	1
Year of Experience	1-3 years	116	0.763
	4-6 years	22	0.145
	7-9 years	10	0.066
	10 years and above	4	0.026
	Total	152	1

Source: *Field Survey, 2025*

To examine the direct and mediating effects of sustainable practices on employee performance, this study adopts a multi-path PLS-SEM approach. The model specification includes direct paths from independent variables to the dependent variable EM-PR, as well as indirect paths through mediating variables such as SP.

The structural model is specified as follows:

$$EM_PR_i = \beta_0 + \beta_1 \text{Consistency}_i + \beta_2 \text{MT}_i + \beta_3 \text{TMS}_i + \beta_4 \text{SP}_i + \epsilon_i \quad (1)$$

$$\text{SP}_i = \alpha_0 + \alpha_1 \text{Recruitment}_i + \alpha_2 \text{Safety}_i + \alpha_3 \text{Training_Dev}_i + v_i \quad (2)$$

Equation (1) captures the direct impact of management practices on employee performance, while Equation (2) estimates the determinants of sustainable practices, which are then used as mediators in the structural model.

In addition, a sensitivity model is constructed to test the robustness of the results under alternative variable specifications:

$$EM_PR_i = \theta_0 + \theta_1 \text{Consistency}_i + \theta_2 \text{MT}_i + \theta_3 \text{TMS}_i + \theta_4 \text{SP}_i + \theta_5 \text{Training_Dev}_i + \omega_i \quad (3)$$

This additional model (Equation 3) allows for the joint effect of Training & Development on both SP and EM-PR, recognizing that workforce capacity-building may serve as both an input to sustainable practices and a direct enhancer of performance outcomes.

The PLS-SEM technique was employed due to its capacity to handle latent constructs, small-to-moderate sample sizes, and non-normally distributed data (Hair et al., 2020). Reliability and validity assessments were conducted through Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE). Bootstrapping with 5,000 subsamples was employed to test the significance of path coefficients and assess the stability of the estimates.

Robustness was ensured by comparing alternative model specifications and re-estimating the model using a reduced sample ($n = 120$) and a reflective-indicator only model. Results remained consistent, confirming the structural integrity and reliability of the findings. Furthermore, model fit indices including the Standardized Root Mean Square Residual (SRMR) and Normed Fit Index (NFI) were within acceptable ranges, reinforcing model adequacy.

4. Results

4.1. Discussion of Results

The descriptive analysis and normality diagnostics in Table 1 provide foundational insights into the statistical characteristics of the constructs used in the study. Across all variables, the means and standard deviations were standardized due to prior normalization in SmartPLS, facilitating comparability. However, excess kurtosis and skewness values suggest some deviations from normality, particularly in the "Training & Development" construct, which exhibited high kurtosis (5.381) and left-skewness (-2.566). These findings may indicate that training opportunities are unevenly distributed across the observed firms, possibly reflecting

differing organizational priorities or resource constraints. While PLS-SEM does not strictly require normality (Hair et al., 2021), such deviations can still offer meaningful context about how social performance practices are implemented in real-world organizational settings.

Construct reliability and validity, as shown in Table 2, reveal that all constructs surpass the recommended thresholds for internal consistency and convergent validity. Composite reliability values exceed the benchmark of 0.70, while AVE values for all constructs are above 0.50, indicating that a substantial portion of variance in each indicator is explained by its latent construct (Fornell & Larcker, 1981). Notably, the "Consistency" construct demonstrates strong internal reliability (Composite Reliability = 0.859, AVE = 0.753), suggesting that the associated indicators may consistently reflect underlying employee productivity. This supports the theoretical proposition that firms with socially responsible practices may enhance not just immediate task efficiency, but also long-term reliability in output (Aguinis & Glavas, 2021).

Discriminant validity, assessed using the Fornell-Larcker criterion in Table 3, indicates that all constructs exhibit sufficient distinctiveness. Each construct's square root of AVE exceeds its correlations with other constructs, confirming construct independence. For instance, "Training & Development" shares a moderately strong correlation with SP (0.429), yet retains an AVE-derived diagonal of 0.845, suggesting its conceptual uniqueness. Interestingly, the negative correlations between "Recruitment" and outcome variables such as "Consistency" (-0.354) and "Timeliness" (-0.471) may imply that poorly implemented inclusion practices could inadvertently disrupt team performance, especially in highly technical environments like pharmaceutical manufacturing (Yoon et al., 2020).

Table 4 presents multicollinearity diagnostics using variance inflation factors (VIF), and the results remain comfortably below the critical threshold of 5.0. The highest VIF value observed is 1.947 (MT → EM-PR), implying low multicollinearity risk. This statistical independence among predictors ensures that each social performance construct adds unique explanatory value to the model. Economically, the low VIFs strengthen the inference that diverse social investments may operate through distinct pathways to influence operational effectiveness, rather than being interchangeable (Kim et al., 2022).

Table 5 highlights the model's predictive strength with an exceptionally high R² value of 0.985 for employee productivity. This suggests that nearly 98.5% of the variance in EM-PR can be explained by the set of social performance indicators and their mediators. Although such high R² values may raise concerns about potential overfitting, the adjusted R² (0.981)

remains robust, indicating that the model maintains its explanatory power even after controlling for the number of predictors. From an economic perspective, this level of predictive strength may imply that social capital investments can manifest as tangible improvements in operational metrics such as timeliness and target attainment (Chatterjee et al., 2021).

The effect size estimates in Table 6 further elucidate the practical importance of each construct. Among the predictors of EM-PR, “Consistency” ($f^2 = 14.077$) and “Meeting Targets” ($f^2 = 11.099$) demonstrate particularly large effect sizes. These findings suggest that consistent worker behavior and goal attainment may serve as primary pathways through which social performance practices translate into operational efficiency. Meanwhile, the SP construct itself exhibits a moderate yet meaningful effect size ($f^2 = 4.305$), implying that social initiatives may contribute indirectly to productivity, potentially by enhancing worker morale, reducing absenteeism, or improving task engagement (Singh et al., 2023).

Bootstrapping results in Table 7 confirm the statistical significance of all hypothesized paths. Specifically, the relationship between SP and EM-PR is positive and significant, offering strong grounds to reject the null hypothesis. Furthermore, each indicator of SP, Training & Development, Health & Safety, and Inclusive Recruitment, significantly predicts the composite SP construct, reinforcing the multidimensionality of social performance. Similarly, Timeliness, Meeting Targets, and Consistency are all significant predictors of EM-PR. These findings suggest that investments in employee-centered policies may yield substantial operational gains, particularly when these policies are well-integrated into human resource practices and quality assurance systems (Bartram et al., 2020).

Taken collectively, the results from Tables 1 through 7 challenge the stated null hypothesis by demonstrating that social performance practices may indeed play a significant role in enhancing employee productivity and operational effectiveness in pharmaceutical manufacturing firms. These results align with contemporary scholarship suggesting that socially responsible management may not only fulfill ethical obligations but can also serve as a source of competitive advantage through improved labor outcomes (Aguinis & Glavas, 2021; Kim et al., 2022). Future research may benefit from extending this framework across longitudinal datasets or by incorporating potential mediators such as psychological safety or organizational trust.

Table 1: Normality Test

Variables	Excess Kurtosis	Skewness
Consistency	-1.305	-0.655
EM-PR	-1.787	-0.062
Health & Safety	-1.305	-0.688
Inclusive Recruitment	-1.031	-0.227
MT	-0.823	-0.560
SP	-1.129	-0.401
TMs	-0.251	-0.879
Training & Development	5.381	-2.566

Source: *SmartPLS Output, 2025*

Table 2: Construct Reliability and Validity

Construct	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Consistency	0.774	0.893	0.859	0.753
Meeting Target	0.749	0.752	0.999	0.540
Recruitment	0.708	0.811	0.789	0.528
Health & Safety	0.717	0.751	0.737	0.513
Timeliness	0.895	0.812	0.815	0.560
Training & Dev	0.748	0.988	0.830	0.714

Source: *SmartPLS 4 Output, 2025*

Table 3: Discriminant Validity (Fornell-Larcker Criterion)

	Consistency	MT	Recruitment	SP	Safety	TMs	Training & Dev
Consistency	0.868						
MT	0.556	0.735					
Recruitment	-0.354	-	0.727				
SP	-0.369	-	0.640	1.000			
Safety	-0.482	-	0.221	0.521	0.716		
TMs	0.476	0.629	-0.471	-	-	0.678	
Training & Dev	0.233	0.318	0.001	0.042	0.274	0.396	0.845
				0.429	-	0.254	

Source: *Author's computation (2025)*

Table 4: Multicollinearity Assessment (VIF)

Relationship	VIF
Consistency -> EM-PR	1.705
MT -> EM-PR	1.947
Recruitment -> SP	1.055
Safety -> SP	1.128
SP -> EM-PR	1.202
TMs -> EM-PR	1.787
Training & Dev -> SP	1.073

Table 5: Model Fit (R²)

Endogenous Variable	R-square	R-square Adjusted
EM-PR	0.985	0.981

Source: Author's computation (2025)

Table 6: Effect Size (f²)

Predictor	EM-PR	MT	SP
Consistency	14.077	11.099	
TMs	6.230		
SP	4.305		
Training & Dev			2.190
Safety			1.956
Recruitment			1.847

Source: Author's computation (2025)

Table 7: Bootstrapping Results - Path Coefficients

Path	Original Sample (O)	Sample Mean (M)	Std (STDEV)	Dev	T Statistics	P Values
Consistency -> EM-PR	0.451	0.451	0.016		27.830	0.000
MT -> EM-PR	0.428	0.428	0.025		17.216	0.000
Recruitment -> SP	0.518	0.515	0.036		14.373	0.000
Safety -> SP	0.551	0.543	0.040		13.842	0.000
SP -> EM-PR	0.263	0.007	0.013		11.482	0.000
TMs -> EM-PR	0.308	0.304	0.020		15.517	0.000
Training & Dev -> SP	0.568	0.554	0.057		10.055	0.000

Source: Author's computation (2025)

4.2. Policy Implications

The findings from this study carry significant policy implications for pharmaceutical manufacturing firms, particularly within emerging markets where social performance (SP) considerations are often perceived as peripheral rather than integral to operational strategies. The significant influence of SP on employee productivity suggests that social policies may serve as strategic levers to improve workforce efficiency. As such, regulatory bodies and industry associations may consider formulating policy frameworks that mandate minimum standards for social responsibility practices in industrial workplaces, aligning productivity incentives with employee wellbeing (Aguinis & Glavas, 2021).

From a macroeconomic standpoint, the adoption of comprehensive social performance policies can potentially mitigate labor market inefficiencies by reducing workforce turnover, absenteeism, and low morale challenges that are particularly acute in pharmaceutical manufacturing due to its intensive compliance and precision requirements. Public policy interventions could include tax incentives or subsidies for firms that invest in certified health and safety systems or inclusive hiring programs. These interventions may help internalize the positive externalities associated with socially responsible behavior, such as knowledge spillovers, healthier labor pools, and greater productivity at the industry level (Chatterjee et al., 2021).

Another critical implication lies in the integration of social performance metrics within national quality assurance and labor inspection frameworks. Traditional compliance checks often focus narrowly on safety violations and regulatory conformity. However, given the statistically significant role of Training and Development (T&D) in shaping social performance ($\beta = 0.568$), policy guidelines could be expanded to include mandatory workforce development benchmarks. Governments and international development agencies may design public-private partnerships (PPPs) to support firm-level capacity building, thereby ensuring that social investments also generate productivity gains (Kim et al., 2022).

Furthermore, institutional mechanisms that promote gender-inclusive recruitment can be refined to address the productivity linkages identified in this study. Although inclusive recruitment policies are often implemented to satisfy equity goals, the findings here suggest such practices may also contribute directly to employee productivity when properly supported. Policymakers could therefore promote sector-specific inclusion frameworks with built-in training pipelines to ensure new hires are effectively integrated into organizational

routines. Such coordinated interventions can help avoid mismatches between labor diversity and operational performance (Yoon et al., 2020).

At the firm level, human resource policies must evolve from transactional models to more strategic, data-driven approaches. The strong predictive power of social performance on employee output demonstrates the utility of embedding SP indicators within performance management systems. Firms may benefit from aligning KPIs for department heads not only with financial or production targets but also with metrics related to employee development, safety compliance, and diversity representation. These internal policy shifts may enable pharmaceutical firms to enhance resilience, reduce error rates, and improve supply chain reliability (Singh et al., 2023).

Finally, global sustainability agendas such as the United Nations Sustainable Development Goals (SDGs), particularly SDG 8 (Decent Work and Economic Growth) and SDG 3 (Good Health and Well-being), may benefit from mainstreaming social performance targets into industrial policy roadmaps. Developmental institutions and donor agencies supporting pharmaceutical sector growth in low- and middle-income countries could prioritize funding and technical assistance for initiatives that build social capital in the workplace. Such an approach may not only enhance firm-level productivity but also promote inclusive and sustainable industrialization across the sector (OECD, 2021).

5. Conclusions

This study examined the influence of social performance practices (SP), operationalized through health and safety, inclusive recruitment, and training and development, on employee productivity (EM-PR) and operational effectiveness in pharmaceutical manufacturing firms. The findings provide empirical support for the rejection of the null hypothesis, demonstrating that SP may exert a statistically significant and positive influence on employee productivity, as reflected in key performance indicators such as timeliness, meeting targets, and consistency. The results suggest that beyond ethical imperatives, SP can function as a strategic mechanism for enhancing workforce outcomes and operational efficiency, aligning with evolving theoretical perspectives that link corporate social responsibility to internal organizational performance (Aguinis & Glavas, 2021; Singh et al., 2023).

Moreover, the structural model revealed robust statistical relationships among the variables, with high R^2 values and strong effect sizes, indicating that a substantial proportion of the variance in employee productivity can be attributed to SP constructs. The findings also

reinforce the relevance of human capital theory and stakeholder-based views of the firm in explaining how investments in socially responsible practices may generate both intangible and tangible returns (Kim et al., 2022). By prioritizing workplace safety, equitable access to employment, and continuous learning, pharmaceutical firms may be better positioned to drive sustainable productivity gains in a sector marked by regulatory scrutiny and technical precision.

In light of the findings, pharmaceutical manufacturing firms are encouraged to institutionalize social performance practices as integral components of their operational strategies. Organizations should consider formalizing health and safety frameworks beyond compliance, integrating them into continuous improvement systems supported by employee feedback and digital monitoring tools. Moreover, inclusive recruitment policies should be matched with structured onboarding and mentorship programs to ensure that diversity translates into productive team dynamics. Training and development should also be realigned with evolving pharmaceutical technologies and regulatory requirements, enabling employees to remain agile and responsive in an increasingly complex operating environment (Yoon et al., 2020).

At the policy level, regulatory agencies and industry bodies may establish minimum benchmarks and incentive structures to promote firm-level social responsibility. For instance, granting certification advantages or preferential access to public procurement for firms that meet robust SP criteria could stimulate sector-wide improvements. Development-oriented agencies may also consider supporting capacity-building initiatives in partnership with private firms to reinforce alignment between corporate behavior and national development goals (Chatterjee et al., 2021). These initiatives may enhance both employee welfare and firm performance, contributing to broader economic resilience in high-stakes manufacturing sectors.

Despite the robustness of the findings, several limitations should be acknowledged. First, the study's cross-sectional design constrains causal inference. While significant associations were identified between SP and employee productivity, the directionality of these effects cannot be conclusively established. Future research may employ longitudinal or panel data to assess the temporal dynamics of social performance and operational outcomes. Additionally, while SmartPLS is appropriate for exploratory and predictive modeling, alternative estimation techniques such as covariance-based SEM or multilevel models may yield complementary insights, particularly in multi-site or multi-national firm settings.

Furthermore, the study was limited to pharmaceutical manufacturing firms, which may restrict generalizability across other industrial sectors. Future research could explore the applicability of these findings in service industries, informal economies, or emerging digital workspaces where the mechanisms of SP may differ. Investigating the mediating role of variables such as job satisfaction, psychological safety, or organizational culture could also deepen understanding of how and why social performance influences productivity. By addressing these limitations, future scholarship can better illuminate the strategic value of social responsibility across diverse economic and institutional contexts.

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