





Deceitful Behaviour, Subtle Behaviour and Procurement Sustainability: Mediating Role of Psychological Contract Violation

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Abstract

This study explores how deceitful and subtle behaviors can affect procurement sustainability, considering psychological contract violation as a potential mediator. Subsequently, data were collected from 123 respondents in the manufacturing sector using purposive sampling and a 5-point Likert scale questionnaire. This study used an explanatory research design, with Structural Equation Modeling (SEM) carried out using SmartPLS and SPSS version 23. The outcomes of the study showed that deceitful behavior positively corresponds with psychological contract violation, but subtle behavior negatively correlates. Also, deceitful behavior has a positive and significant link to procurement sustainability, while subtle practices affected procurement sustainability insignificantly. In addition, psychological contract violation has a positive and significant link to procurement sustainability. While deceit behavior, subtle behavior, and procurement sustainability were not mediated by psychological contract breach, the report suggests encouraging ethics and enforcing rules to deter wrongdoing. In short, more research across varied industries with larger and more representative samples is needed. Despite sample size and data collecting constraints, this research adds to the little literature on ethics and sustainable procurement, underlining the need for more studies.

Subject Areas

Supply Chain Management

Keywords

Unethical Behaviour (UEB), Deceitful Behaviour (DB), Subtle Behaviour (SB), Psychological Contract Violation (PCV), Procurement Sustainability (PS)

1. Introduction

As corporations consider environmental, social, and economic concerns while buying, sustainable procurement has risen, promoting ethical sourcing, limiting environmental impact, and creating long-term value [1]. That notwithstanding, in an attempt to improve these procurement concepts, [2] cautioned that unethical behaviors such as deceit and subtle behaviors can stamper the progress. In support, these authors [3]-[5] contended that lack of transparency raises pricing, distorts supplier selection, and diminishes stakeholder trust. Recent studies have showcased that psychological factors can also affect organizational behavior, despite institutional limits being blamed for unethical behaviors [6]. [7] contended that psychological contract violation is where employees feel that their company has violated unwritten expectations of fairness, respect, trust, and ethics, making them emotionally disengaged, lose commitment, and deviate when expectations are not satisfied [8]. Similarly, in the procurement context, where ethics and integrity are crucial, the issue of psychological contract violation might lower moral resistance and promote unethical decisions [9]. For example, bribery, favoritism, bid rigging, and falsification of records can produce unethical practices. [10] and [11] added that these behaviors often occur in organizational cultures where ethical standards are unclear and accountability is weak. In such environments, unethical actions are not only tolerated but may even be rationalized, especially when employees feel unfairly treated. To a large extent, this sense of injustice can lead to retributive behavior or efforts to balance perceived inequities, which ultimately undermines sustainability goals. In [12], sustainable procurement is the acquisition of goods and services in a way that delivers long-term economic, social, and environmental benefits while ensuring value for money. This includes practices such as green procurement, supporting local economies, complying with labor and human rights standards, and reducing carbon emissions, and their implementation largely depends on the ethical behavior of procurement professionals [13]. However, when unethical conduct becomes widespread, sustainability efforts often fail to achieve their intended impact [14]. This paper considers unethical behavior as “deceitful” and “subtle”. Deceitful behavior, defined by [15], involves outwardly deceptive actions with evident outcomes, such as falsifying invoices or accepting bribes, while subtle behavior involves cunning actions and deceptive means to achieve goals, often manifested in disguised communication or actions that mislead, such as favoring unsustainable suppliers despite their lower environmental performance [16]. Both deceitful and subtle behaviors have been linked to

a range of unethical practices, from corruption and fraud to environmental degradation and labor exploitation, compromising financial health and undermining social and environmental sustainability [17]. [14] argued that despite the growing policy support for sustainable procurement, there remains a disconnect between official frameworks and real-world practice, especially in developing countries. For example, in Ghana, efforts to promote sustainable procurement have been hindered by corruption, low awareness, and poor enforcement [12]. These structural problems are widely documented, but behavioral and psychological aspects that influence procurement ethics are less so. Limited research exists on how perceived psychological contract violations affect procurement behavior. Many studies in this field ignore how fairness, trust, and obligation affect daily behavior, focusing on institutional reforms or normative ethics. This difference is especially obvious in resource-constrained, politically influential, and institutionally fragile situations. Understanding how psychological contract violation affects deceitful, subtle behaviors and procurement sustainability helps identify the causes of compliance and misbehavior. Thus, this study examines how psychological contract violation influences unethical and sustainable procurement. It emphasizes organizational dynamics above regulatory approaches to ethics. According to the study, corporate justice, fairness, and moral leadership may promote ethical procurement. The study employs Social Exchange Theory [18] and Psychological Contract Theory [7]. Explaining the theories, it is documented that reciprocity and perceived fairness impact business conduct, whereas unmet expectations affect employee behavior. These theories lay the groundwork for understanding how ethical climates and behavioral norms affect procurement. Finally, deceitful behavior, subtle behavior, psychological contract breach, and sustainable procurement are crucial but understudied. This difficulty must be addressed to provide efficient, transparent, and sustainable procurement procedures. The report covers literature review, materials and methods, results, conclusions, limitations, actionable recommendations, and future research.

2. Literature

[19] describes unethical action as breaching morality to benefit oneself, avenge the firm, or harm coworkers. It is related to unfairness and harmful outcomes like stealing or exploiting firm property in [20]. Studies reveal that human traits, organizational cultures, and external factors can induce unethical behavior. [21] defines purposeful misconduct as falsifying bills or taking bribes. Deception undermines supplier confidence and organizational frameworks, delaying decision-making. To attain goals, subtle behavior employs deception and smarts. [22] demonstrates its negative consequences on employee work satisfaction, turnover intentions, and unproductivity. According to research, simple activities can change employees' views, attitudes, and actions. [23] defines procurement sustainability as minimizing environmental impacts and maximizing social benefits. When selecting things, consider the triple bottom line as social, economic, and environmental

from acquisition to disposal. Environmental sustainability needs lifecycle-wide green procurement. Social well-being in procurement sustainability comprises expanding communities, providing socially responsible goods and services, and upholding labor norms. This requires coordinating and maintaining equity-promoting organizational activities for workers, the public, and supply chains. Finally, breaking unwritten workplace agreements causes psychological contract violation. Psychological contract violation (PCV) may result from employee expectations about job, treatment, and obligations [24]. A contract breach can severely impact employees' beliefs about working relationships.

Theorizing of the Variables

Accountable companies prioritize procurement sustainability (PS) (See **Figure 1**). However, a new study shows how deadly dishonesty is here. When firms buy eco-friendly and socially responsible products, they often run into internal and external issues that damage their image and prevent them from meeting their sustainability goals. Sustainable buying lies include inflating accomplishments, disguising sustainability concerns, lying about certifications, and greenwashing, according to [25]. According to [26], firms should promote openness, accountability, and regular checks to combat these dangers. These procedures are crucial to the company's reputation and long-term sustainability. From this claim came this theory.

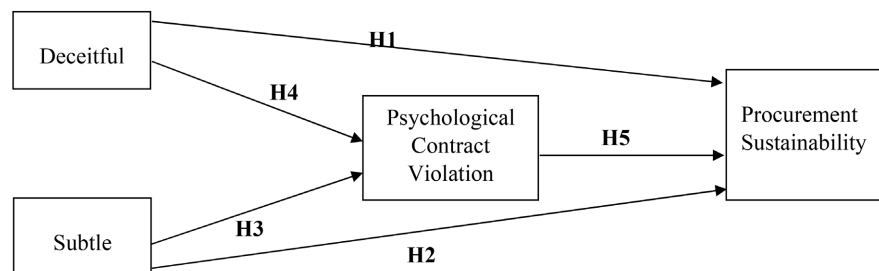


Figure 1. Theoretical framework (Source: Authors' creation).

H1: *Deceitful behaviour has a negative impact on procurement sustainability*

People can impact sustainability efforts negatively, even if an organization's policies do not specify that they are wrong. According to [27], vendors may silently pressure consumers to make environmentally harmful choices, and companies may promote short-term profits above long-term environmental goals. Promised new suppliers may be told to grow faster and enhance product quality without considering environmental or social issues. According to [28], these behaviors may seem useful in the short term but can hinder long-term sustainable buying goals. Assumption led to supposition.

H2: *Subtle behaviour negatively impacts procurement sustainability*

Recently, Psychological Contract Violation (PCV) and Unethical Behavior (UEB) have been extensively examined. A negative connection suggests that PCV suffer-

ers are less likely to participate in UEB. Many factors explain this relationship. PCV and UEB are negatively correlated in many empirical investigations, including polls, experiments, and meta-analyses. [29] found a negative correlation between PCV and self-reported UEB in workers. [30] showed a negative correlation between students' PCV and UEB plans. Results have significant real-world implications. Managers must recognize that PCV can cause UEB and prevent it. This entails communicating expectations, maintaining commitments, and treating workers properly. Managers should also know how to handle PCV situations by supporting victims and taking appropriate disciplinary action against UEB participants. These ideas came from this evidence.

HB: *Subtle behaviour negatively affects psychological contract violation*

HA: *Deceitful behaviour significantly affects psychological contract violation*

Studies have shown that psychological contract violation (PCV) and sustainable procurement are related ideas that can have a big effect on the success of a business. [31] defines PCV as an employer and employee breaking unwritten rules or deals. However, sustainability buying takes into account social and environmental considerations. Sustainable procurement aims to limit environmental impact, promote social responsibility, and ensure long-term sustainability, according to [26]. Studies have revealed that PCV-exposed workers are more likely to take bribes from vendors or create phony invoices, which affects procurement. These illegal behaviours can also affect green purchasing by pulling money and time away from green projects, undermining supplier relationships, and making a company look bad as a responsible buyer. Based on this parallel, the writers developed this theory.

H5: *Psychological Contract Violation has a major impact on procurement sustainability*

Psychological contract violation (PCV) occurs when a corporation fails to meet employee expectations. The social exchange theory states that trust breaches can affect work satisfaction, organizational commitment, and performance. Because unethical behaviour, no matter how minor, can harm someone. Bad behaviour can hurt sustainable procurement. For instance, procurement specialists who accept bribes may favour environmentally harmful vendors or products. Forging invoices raises buying prices, reducing funds for green programs. Research shows that people act unethically in businesses because they want to get something for themselves, get back at the business, or hurt their coworkers [19]. Psychological contract theory (PCT) says that psychological contracts are mental models that show how people think about the connections they have with others. More and more proof shows that PCV can lessen the link between unethical behaviours and environmentally friendly procurement. [32] demonstrated a positive correlation between PCV and unethical behavior, while also finding a negative association between PCV and procurement sustainability. In the same way, [33] found that PCV and how employees felt about corporate justice were negatively related. Furthermore, they showed that employees' opinions of fairness in the workplace are

linked to less ethical behaviours. Furthermore, their research showed that how employees feel about organizational justice affects the link between PCV and unethical behaviours. This means that the positive relationship between PCV and unethical behaviours is weaker in places where employees feel more strongly about organizational justice [34]. Because of this, the writers came up with this hypothesis:

H6: *The mediator, psychological contract violation, does not influence the relationship between unethical behaviour and procurement sustainability*

3. Materials and Methods

This study collected data from 123 respondents drawn from various companies within the manufacturing industry in Ghana. A purposive sampling technique was employed to deliberately select participants who possessed relevant expertise and professional experience aligned with the research objectives. This non-probability method was appropriate given the need for informed insights into procurement practices, ethical conduct, and sustainability. The sample comprised professionals such as project managers, procurement officers, materials engineers, suppliers, and contractors. Data collection was conducted using a structured, self-administered questionnaire. The questionnaire was distributed through a combination of electronic means (email and online survey links) and physical delivery, depending on the accessibility and preference of the respondents. This mixed-mode approach enhanced the overall participation rate. The instrument was based on validated scales from prior studies, adapted to the context of the manufacturing and production sector. Items were measured using a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). The questionnaire consisted of multiple sections capturing key constructs: deceitful behavior, subtle behavior, psychological contract violation, and procurement sustainability. Prior to full-scale deployment, a pilot study was conducted with a small subset of participants ($n = 15$) to test the clarity, internal consistency, and reliability of the questionnaire items. Feedback from the pilot led to minor revisions for clarity and relevance. Ethical protocols were strictly followed throughout the data collection process. Participation was voluntary, informed consent was obtained, and anonymity and confidentiality were guaranteed to minimize social desirability bias and encourage honest responses. Of the 150 questionnaires distributed, 123 were returned and deemed usable, resulting in a response rate of 82 percent. The remaining 27 questionnaires were either not returned or substantially incomplete, accounting for an 18 percent non-response rate. To assess non-response bias, early and late responses were compared on key variables using t-tests, and no statistically significant differences were observed. This suggests that non-response bias was minimal. Data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics (frequencies, means, and standard deviations) were used to summarize the demographic characteristics and main variables. Inferential statistics, including Pearson’s correlation and multiple re-

gression analysis, were conducted to examine the strength and direction of relationships among the variables, as well as to test the hypothesized mediating role of psychological contract violation in the relationship between deceitful behavior, subtle behavior, and procurement sustainability. To address the issue of common method bias (CMB), procedural and statistical remedies were applied. Procedurally, anonymity and psychological separation of item blocks were ensured to reduce evaluation apprehension and priming effects. Statistically, Harman's single-factor test was conducted, with all items entered into an exploratory factor analysis. The results showed that no single factor accounted for more than 50 percent of the variance, suggesting that common method bias was not a significant threat to the validity of the findings. In summary, the methodological approach adopted in this study ensured rigor, reliability, and ethical integrity in examining the relationships among deceitful behavior, subtle behavior, psychological contract violation, and procurement sustainability in Ghana's manufacturing sector. (See **Table 1**)

Table 1. List of questions on subtle behaviour, deceitful behaviour, psychological contract violation, procurement sustainability.

Symbols	Questions	Sources
Deceitful Behavior		
DB1	The organizations invent (make up) a second source of supply to gain a sustainable procurement.	
DB2	The organizations use obscure contract terms to achieve sustainability in procurement.	[35]
DB3	The organizations exaggerate the seriousness of a problem to achieve procurement sustainability.	
DB4	The organizations purposefully mislead authorities in procurement sustainability.	
Subtle Behavior		
SD5	The firms allow the supplier's personality to impact decisions on procurement sustainability.	
SD6	The firms give preference to suppliers preferred by their top management based on sustainability.	[35]
SD7	The firms write specifications that favor a particular supplier.	
Psychological Contract Violation		
PCV1	Angry	
PCV2	Cheated	
PCV3	Pleased	[35]
PCV4	Disillusioned	
PCV5	Frustrated	

Continued

Procurement Sustainability

PS1	The concept of environmental protection is evident throughout the company's design, procurement, production, sales, use, reuse, processing, and other processes.	
PS2	The company prefers its suppliers to have environmental certifications.	
PS3	The companies actively share good environmental practice experiences with their partners.	
PS4	The companies consider whether their behavior will damage the image of the company.	
PS5	In practice, companies not only consider short-term profits, but they also focus on long-term profits.	[36]
PS6	The companies have established a healthy and safe management system.	
PS7	The companies' focus on improving the working environment and welfare benefits.	
PS8	The company often engages in community charity work.	
PS9	The companies, when selecting partners, give priority to those who comply with and support laws, regulations, and standards on social sustainability.	

Source: Authors' creation.

3.1. Deceitful Behaviour, and Subtle Behaviour

This study employed both deceitful behaviour and subtle behaviour as the independent variables, measured through a 7-item instrument capturing both **deceitful** and **subtle** behaviours. **Deceitful behaviour** refers to overt acts of moral transgression, often readily identifiable by their negative outcomes. In contrast, **subtle behaviour** involves acting shrewdly and skilfully while employing deceptive means to achieve one's goals.

3.2. Procurement Sustainability

This study employed **Procurement Sustainability (PS)** as the dependent variable. PS is measured through a 9-item instrument. This comprehensive measure allows for a nuanced understanding of procurement sustainability in the manufacturing sector.

3.3. Psychological Contract Violation

This study introduced **Psychological Contract Violation (PCV)** as the mediating variable, investigating its influence on the relationship between Deceitful behaviour (DB), Subtle behaviour (SB), and **Procurement Sustainability (PS)**. PCV was measured through a 5-item instrument.

3.4. Econometric Techniques

This study leveraged SmartPLS software for data analysis. This software employed a variance-based partial least squares (PLS) technique, accounting for measurement error and leading to more accurate results. Furthermore, SmartPLS demonstrably excels when dealing with smaller datasets. To estimate the results empirically, the study adopts Structural Equation Modelling (SEM). This method encompasses two distinct models: the measurement model and the structural model. The measurement model, through Confirmatory Factor Analysis (CFA), assesses the data's reliability and validity. Conversely, the structural model estimates standardized coefficients, derived via a bootstrapping process. Finally, the study employed path analysis to evaluate the direct effects of the independent variables: Deceitful behaviour (DB), Subtle behaviour (SB), on the dependent variable; Procurement Sustainability (PS).

4. Results

4.1. Presentation of Demographics

As can be observed from **Table 2**, 43 (35%) of the participants were found to be 24 to 29-year-olds made up 35.8% of the respondents, 44 respondents were between 31 and 36 years old, 31 respondents (25.2%) were between 37 and 45 years old, and the remaining 5 respondents (4.1%) were above 45. According to the findings, most of the participants in the study were between the ages of 31 and 36. According to **Table 2** below, 46 respondents (37.4%) reported having less than six years of experience, 56 respondents (45.5%) reported having six to fifteen years of experience, 20 respondents (16.3%) reported having sixteen to twenty-five years of experience, and one respondent (0.8%) reported having more than twenty-five years of experience. Most responders had 16 - 25 years of work experience, according to statistics. **Table 2** shows that 19 (15.4%) of study participants had a diploma or HND, 52 (42.3%) a degree, 41 (33.3%) a master's, 8 (6.5%) a doctorate, and 3 (2.4%) a certificate. The majority of respondents had degrees. The study found that 28 (22.8%) of respondents were project managers, 33 (26.7%) were procurement officials, 24 (19.5%) were material engineers, 21 (17.1%) were suppliers, and 17 (13.8%) were contractors. Results showed most respondents were procurement officers.

Table 2. Demographic.

Variables	Category	Frequency (N)	Percent (%)
Ages	24 - 30	43	35.0
	31 - 36	44	35.8
	37 - 45	31	25.2
	Over 46	5	4.1
Experience	0 - 5 years	46	37.4
	6 - 15 years	56	45.5
	16 - 25 years	20	16.3
	Over 25	1	0.8

Continued

	Diploma/HND	19	15.4
	Degree	52	42.3
Education	Masters	41	33.3
	PhD	8	6.5
	Certificates	3	2.4
	Project manager	28	22.8
	Procurement officer	33	26.8
Position	Materials engineer	24	19.5
	Supplier	21	17.1
	Contractor	17	13.8
	Total	123	100.0

Source: Authors' creation.

4.2. Descriptive Statistics and Inter-Construct

This section examined bivariate correlational analyses of the main constructs. Created and tested individual and composite constructs for correlation. **Table 3** shows Spearman's Rho coefficients below the diagonal for bivariate correlational analysis. Given the transformation of latent constructs from observed variables, Spearman's correlation approach was thought more appropriate for non-numerical or discrete variables. **Table 3** offers descriptive statistics and correlations of variables. The mean values varied from 2.83 to 3.33, reflecting the central trend of the data. Each construct's standard deviation ranged from 0.698 to 0.838, indicating variability. Specifically, the mean and standard deviation for deceitful behaviors were ($M = 3.17$; $SD = 0.698$), for Subtle behaviors were ($M = 2.83$; $SD = 0.718$), for psychological contract violation were ($M = 2.87$; $SD = 0.766$), and for procurement sustainability were ($M = 3.33$; $SD = 0.838$). These values provide insights into the distribution and variability of scores within each construct, forming the basis for further analyses and interpretations in the study.

Table 3. Descriptive statistics and inter-construct correlation.

Constructs	Mean	Std.	1	2	3	4
1. Deceitful behaviors	3.1707	0.697 86	1			
2. Subtle behaviors	2.8320	0.718 45	0.394**	1		
3. Psychological contract violation	2.8683	0.765 58	-0.051	0.154	1	
4. Procurement sustainability	3.3333	0.838 15	0.298**	0.263**	0.095	1

Source: Authors' creation. Note: Correlation is significant at the 0.01 level (2-tailed). ** = $p < 0.01$, indicating a highly significant relationship. No asterisk = not statistically significant at conventional levels.

4.3. Structural Equation Modeling and Confirmatory Factor Analysis

In this section, inferential analysis used structural equation modeling (SEM), a popular statistical method for investigating correlations between unobservable variables utilizing numerous observed indicators. The section will have two parts: the measurement model, which assesses indicators' relevance to corresponding variables or elements, and the structural model (See **Figure 2**), which shows study variable linkages. Observed variables were rigorously screened before estimating and testing the models. Then, observable and latent variables were validated and reliability tested. Confirmatory Factor Analysis (CFA) identified unidimensional sets with few mistakes for construct validation on observed items. **Table 4** shows the observed variables, factor loadings, and VIF. Convergent validity, factor loadings, AVE, CA, and CR were used to evaluate validity and reliability. Positive factor loadings and AVE values from 0.512 to 0.699, above 0.5, confirmed convergence. High dependability was indicated by Cronbach Alpha and Composite dependability values above 0.70. All measurement sets had CAs above 0.60, which is high, while CRs surpassed 0.60. Discriminant validity, assessed using AVE, revealed satisfactory results as shared variances between constructs were smaller than the AVE values. The study adhered to a variance-inflated factor (VIF) to assess collinearity among latent variables, and the VIF values presented in **Table 4** indicated ideal collinearity statistics ($VIF < 3$), preventing issues arising from high correlations between indicators. Collinearity, a potential concern when two indicators are highly correlated, was effectively managed in the study.

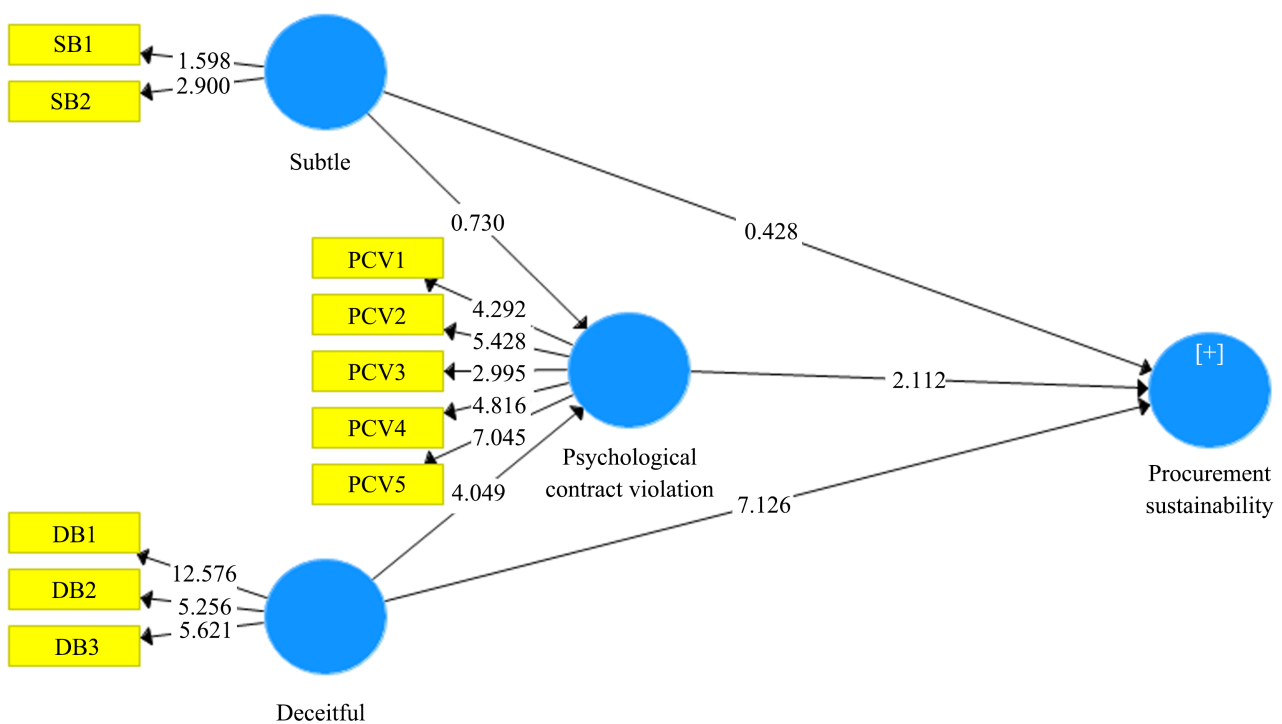


Figure 2. Structural model measurement path diagram.

Table 4. The test for validity and reliability.

Construct	Items	Loadings	CA	CR	AVE	VIF
Deceitful	DB1	0.786	0.654	0.758	0.512	1.070
	DB2	0.674				1.287
	DB3	0.682				1.265
Psychological contract violation	PCV1	0.583	0.714	0.801	0.549	1.373
	PCV2	0.715				1.925
	PCV3	0.582				1.030
	PCV4	0.672				1.574
	PCV5	0.776				1.845
Economic Sustainability	PS1	0.769	0.736	0.851	0.656	1.664
	PS2	0.863				1.819
	PS3	0.872				1.593
Environment Sustainability	PS4	0.872	0.746	0.854	0.663	1.739
	PS5	0.814				1.541
	PS6	0.739				1.334
Social Sustainability	PS7	0.844	0.792	0.874	0.699	1.649
	PS8	0.879				1.708
	PS9	0.710				1.320
Subtle	SB1	0.626	0.653	0.785	0.657	1.171
	SB2	0.960				1.171

Source: Authors' creation. NB: CR is for Composite Reliability; AVE stands for Average Variance Extracted; VIF for Variance Inflation Factor; and CA for Cronbach Alpha.

4.4. Discriminant Validity

Discriminant validity measures a variable's uniqueness by determining its distinctness. We tested this study's discriminant validity using the Cross Loading and Fornell and Larcker criterion [37]. This tested the Fornell and Larcker and cross-loading criterion ratios' sensitivity [38]. Cross Loading illustrates that a variable impacts its latent variable more than others in the dataset. Apply the Fornell and Larcker criterion to squared Average Variance Extracted (AVE) numbers and correlations. If associations have diagonal values (squared AVEs) greater than 0.5, the discriminant function works. Both **Table 5** and **Table 6** indicate discriminant validity in this investigation. Cross-loading indicates that they strongly influence each other's latent variables, and squared AVE values in associations exceed 0.5. (**Table 5**)

Table 5. Cross loadings.

	Deceitful	Psychological Contract Violation	Subtle	ECO	ENV	SOC
DB1	0.786	0.226	0.072	0.455	0.509	0.473
DB2	0.674	0.167	0.114	0.250	0.260	0.058
DB3	0.682	0.207	0.059	0.265	0.325	0.178
PCV1	0.236	0.583	-0.033	0.064	0.064	0.080
PCV2	0.183	0.715	-0.144	0.164	0.193	0.098
PCV3	0.205	0.582	0.040	0.325	0.247	0.412
PCV4	0.067	0.672	0.029	0.124	0.173	0.187
PCV5	0.221	0.776	-0.092	0.234	0.253	0.211
PS1	0.288	0.193	0.039	0.445	0.425	0.769
PS2	0.334	0.283	0.147	0.597	0.560	0.863
PS3	0.344	0.370	0.055	0.606	0.585	0.872
PS4	0.442	0.252	-0.008	0.872	0.675	0.603
PS5	0.378	0.296	0.049	0.814	0.671	0.507
PS6	0.335	0.237	-0.040	0.739	0.543	0.517
PS7	0.468	0.173	0.168	0.720	0.844	0.506
PS8	0.507	0.333	0.039	0.680	0.879	0.604
PS9	0.315	0.249	0.028	0.482	0.710	0.432
SB1	-0.032	-0.003	0.626	-0.015	0.012	0.071
SB2	0.139	-0.061	0.960	0.008	0.112	0.093

Source: Authors' creation.

The Fornell and Larcker criterion is used in structural equation modeling to assess discriminant validity, which ensures that a construct is truly distinct from other constructs. This is achieved by comparing the square root of the Average Variance Extracted (AVE) for each construct with the correlation coefficients shared between constructs. The bolded diagonal values are the square roots of the AVEs for each construct. To confirm discriminant validity, each bolded diagonal value should be greater than the correlation values in its row and column. Deceitful (0.716) is greater than its correlations with other constructs (e.g., 0.283, 0.478, 0.539), confirming discriminant validity. All other constructs (e.g., Psychological Contract Violation, Subtle, and all three Sustainability dimensions) meet the same condition. This supports the discriminant validity of all constructs in the model, confirming that they are empirically distinct. (Table 6)

Table 6. Fornell and Larcker criterion.

Constructs	1	2	3	4	5	6
Deceitful	0.716					

Continued

Psychological contract violation	0.283	0.670				
Subtle	0.108	-0.052	0.810			
Economic Sustainability	0.478	0.322	0.002	0.810		
Environment Sustainability	0.539	0.311	0.098	0.781	0.814	
Social Sustainability	0.388	0.354	0.100	0.670	0.639	0.836

Source: Authors' creation.

4.5. Structural Model Analysis

The structural model, or inner model, lets researchers predict target structures and evaluate the model's performance. The study examines direct correlations using standard errors and bootstrapping (5000 with replacement), as [37] advise. This relies on measurement model trust. This section covers significant measurements including the f-value, p-value, path coefficient, coefficients of determination (R^2), impact size (f^2), and effect size (q^2). When the structure path coefficient depends heavily on its standard error, the study uses its p-value and t-value. The t-value is 1.96 at 0.05% significance. These statistical data illustrate how significant and strong the structural model's relationships are, making this study's hypotheses easier to interpret.

4.5.1. Predictive Relevance (R^2)

The coefficient of determination (R^2) reveals how much the independent factors explain the dependent variable's change. [39] and [40] claim R^2 reveals how well the study's independent components predicted the outcome. In order, [41] recommends R^2 values of 0.75, 0.50, and 0.25 as important, moderate, and weak. However, [40] emphasizes the importance of understanding R^2 in the linked sector. The study shows that this model has low forecast accuracy (R^2) for economic, environmental, and social sustainability, with values of 0.268, 0.321, and 0.140 for each, as shown in **Table 7**. Based on these findings, illegal actions may be responsible for 27% of the differences in Economic Sustainability, 32% of the differences in Environmental Sustainability, and 14% of the differences in Social Sustainability. According to the standards set by [41], the values may be called weak. However, [40] says that the interpretation of R^2 should be thought about in the context of the field being studied.

Table 7. Coefficients of determination (R^2) and R^2 adjusted.

	R Square	R Square Adjusted
Psychological contract violation	0.087	0.072
Economic Sustainability	0.268	0.250
Environmental Sustainability	0.321	0.304
Social Sustainability	0.140	0.125

Source: Authors' creation.

4.5.2. Effect Size (Q^2)

Quantifying Q^2 can help determine the accuracy of a Partial Least Squares (PLS) model, as suggested by [42] and [43] and confirmed by [44]. Q^2 is calculated by blindly removing a data point, setting it aside, then re-estimating the model. Q^2 , though not a prediction approach, combines sample prediction with descriptive strength [39] [45]. Blindly, estimating the set-aside data increases Q^2 accuracy by a little difference between the expected value and the baseline. The structural model's prediction accuracy for an endogenous component is indicated by a Q^2 value greater than zero. Q^2 values above 0, 0.25, and 0.50 suggest small, medium, and significant PLS-path model predictive importance. **Table 8** shows economic, environmental, and social sustainability Q^2 values of 0.241, 0.604, and 0.612. These results demonstrate that the PLS model accurately predicts the constructs.

Table 8. Predictive relevance (Q^2).

Constructs	Q^2
1. Economic Sustainability	0.241
2. Environmental Sustainability	0.604
3. Social Sustainability	0.612

Source: Authors' creation.

4.5.3. Structural Model Assessment

Using the direct relationships listed in **Table 9** below, SEM was used in this section to investigate the hypothesized relationship between the primary individual units of constructs and variables.

Table 9. Hypothesis testing for direct relationship.

Hypothesis	Path Coefficients	t Statistics	p Values	Results
H ₁ : Deceitful → Psychological contract violation	0.327	4.049	0.000	Confirmed
H ₂ : Subtle → Psychological contract violation	-0.089	0.730	0.466	Rejected
H ₃ : Deceitful → Procurement sustainability	0.483	7.126	0.000	Confirmed
H ₄ : Subtle → Procurement sustainability	0.046	0.428	0.669	Rejected
H ₅ : Psychological contract violation → Procurement sustainability	0.220	2.112	0.035	Confirmed
H _{6a} : Deceitful → Psychological contract violation → Procurement sustainability	0.070	1.941	0.053	Rejected
H _{6b} : Subtle → Psychological contract violation → Procurement sustainability	-0.017	0.607	0.544	Rejected

Source: Authors' creation.

Hypothesis Testing

The study aimed to investigate the impact of deceitful behavior and subtle behavior on procurement sustainability, focusing on psychological contract violation as the mediator. Below are the key findings and implications:

Direct Effects

H₁ (Confirmed): Deceitful behavior **significantly increases** psychological contract violation ($\beta = 0.327$, $p = 0.000$). Employees feel betrayed when exposed to deceitful conduct.

H₂ (Rejected): Subtle unethical behavior has **no significant effect** on psychological contract violation ($\beta = -0.089$, $p = 0.466$). It may be too minor to be perceived as a breach.

H₃ (Confirmed): Deceitful behavior **positively affects** procurement sustainability ($\beta = 0.483$, $p = 0.000$). This surprising result suggests that aggressive or manipulative tactics may lead to short-term sustainability outcomes.

H₄ (Rejected): Subtle behavior has **no impact** on procurement sustainability ($\beta = 0.046$, $p = 0.669$).

H₅ (Confirmed): Psychological contract violation **positively influences** procurement sustainability ($\beta = 0.220$, $p = 0.035$). Violations may trigger stricter controls or compliance efforts.

Indirect (Mediated) Effects

H_{6a} (Rejected): Psychological contract violation **does not significantly mediate** the relationship between deceitful behavior and sustainability ($\beta = 0.070$, $p = 0.053$).

H_{6b} (Rejected): No mediation effect from subtle behavior through psychological contract violation ($\beta = -0.017$, $p = 0.544$).

5. Conclusion

This study examined how psychological contract violation mediates the effects of deceitful behavior and subtle behavior on procurement sustainability in the manufacturing sector. The findings reveal that deceitful behavior positively correlates with psychological contract violation, indicating that employees view such behavior as a serious breach of trust. In contrast, subtle behavior showed a negative but statistically insignificant relationship, suggesting it is not perceived strongly enough to constitute a violation. Deceitful behavior was also found to have a positive and significant link to procurement sustainability, an unexpected result that may reflect short-term gains or compliance outcomes driven by aggressive tactics. Subtle behavior, however, had no significant impact on procurement sustainability. Psychological contract violation itself was positively and significantly associated with procurement sustainability, suggesting that organizational responses to breached expectations, such as increased oversight or corrective actions, may still support sustainability goals. Despite these relationships, psychological contract violation did not mediate the effect of deceitful or subtle behavior on procurement sustainability. This indicates that the pathway from unethical behavior to sustain-

ability does not primarily operate through employees' perceived breaches of contract. The data underscore the complexity and inconsistency of unethical procurement practices and their outcomes in the manufacturing sector. The study highlights the need for manufacturing professionals to prioritize ethical leadership, transparent accountability, trust, and inclusive workforce engagement. It emphasizes that written policies alone are insufficient. Instead, behavioral dynamics and organizational culture must be addressed to promote ethical and sustainable procurement practices. Given that the limited research on the interplay between deceitful behavior, subtle behavior, psychological contract violation, and procurement sustainability in the manufacturing sector is limited and requires room for further studies. The study's limitations, including its cross-sectional, self-reported data and nonprobability sampling, suggest the need for longitudinal research, qualitative insights, and broader sectoral representation. Another limitation of this study is the exclusion of control variables such as employee demographics or organizational characteristics, which may influence perceptions of unethical behavior and sustainability. Future research should include relevant controls to improve the accuracy and generalizability of the findings. Additionally, factors such as organizational justice, ethical climate, and leadership style may help explain ethical behavior and sustainable procurement, especially in resource-constrained settings. Achieving sustainable procurement in manufacturing requires more than procedural changes. It demands structural reforms and a shift toward a culture of ethical responsibility and trust. To this end, several actionable steps are recommended. Firms should implement ethics training tailored to procurement scenarios and reinforce ethical behavior through leadership modeling and open communication. Ethics should be embedded in procurement policies, including supplier evaluation, audits, and performance indicators. Safe, anonymous reporting channels must be established to encourage employees to report unethical conduct without fear of retaliation. Organizations should regularly assess psychological contracts to monitor employee expectations and maintain trust. That notwithstanding, ethical behavior should be recognized and rewarded, and investment in leadership development should be a top priority. Collaboration with academic, industry, and regulatory bodies can also help establish shared standards and best practices. In summary, sustainable manufacturing procurement is not only about policy but also about shaping ethical behavior and organizational culture. Embedding these values across all levels of the organization is essential for achieving long-term sustainability and performance.

Authors' Contributions

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Conflicts of Interest

The authors declare no conflicts of interest.

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