



Green Procurement Practices, Ethical Procurement and Value for Money with Empirical Evidence from Ghana

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ABSTRACT

Achieving UN Sustainable Development Goal 12, has multiplier effects on attainment of other SDGs. In line with this assertion, the current study is aimed to examine the influence of green procurement practices on value for money and the mediating role of ethical procurement in the agricultural sector in Ghana. The study positions green procurement as a multi-dimensional construct proxied as; green purchasing, supplier selection, and supplier development, and places ethical procurement as being the governance tool which turns sustainability activities into performance results. The study is based on positivists' paradigm, quantitative approach, and a cross-sectional survey design using the participants from procurement and supply chain specialists among agribusiness firms in Ghana. Our hypothesized relationships have been tested by using structural equation modelling (SEM) with the aid of SMART-PLS version 4.1.1. The results showed that all three dimensions of green procurement exert significant positive effects on ethical procurement. Moreover, ethical procurement has a very significant benefit on value for money, which includes improvements in accountability, efficiency, and lifecycle cost optimization. Crucially, ethical procurement plays a mediating role between green procurement practices and value for money, the analysis finds that green procurement does not automatically translate into greater value for money. Theoretically, the study provides a contribution by recasting ethical procurement as an organisational capability and empirically by providing evidence from the context of an emerging economy (Ghana). From a practical perspective, these findings suggests that ethical enforcement mechanisms, supplier governance systems and standards of professional procurement must be enshrined within green procurement practices to optimize benefits and in terms of economic and sustainability aspects to policymakers and managers.

Keywords: Agri-Businesses, Ethical Procurement, Green Procurement, Value for Money, Structural Equation Modelling

JEL Classifications: H57, H83, D73, Q56, M14

1. INTRODUCTION

The achievement of United Nations (UN) sustainable development goal (SDG) 12, has multiplier effects on attainment of other SDGs including 13 (climate action), food security (SDG2), good health and wellbeing (3) amongst others. More unsustainable consumption and manufacturing practices are driving the world's environmental disaster so much that governments, companies, and the public need to re-evaluate business practices in terms of purchasing and supply chain and sustainability of production (Tartila et al., 2025). These obstacles have refocused attention on a shift toward environmentally sustainable practices for consuming and purchasing, as consumers

realising that buying decisions have significant impact on production process, resources and consumption, loss of resources, waste and environment results (Jaiswal and Kant, 2018; Ahmad et al., 2024; LeBlanc, 2022). In response, in order to integrate sustainability in the procurement process, initiatives include green procurement - and the term environmentally preferable purchasing - as one way to design an approach that will embed sustainability into purchasing-related activities. Green procurement is the process of purchasing goods and services that create a minimum impact on health and the environment where appropriate, from raw material purchasing to manufacturing, design, and consumption (Xanthos and Walker, 2017; Mao et al., 2023).

With increased concern for the environment, both business entities and end-users have been encouraged to translate concern into purchasing green products and services (Haque et al., 2020; Oanh, 2024; Olfat, 2025). An extensive body of research consistently demonstrates that professional purchasers who incorporate environmental dimensions into their procurement strategy save on waste, reduce damage and in some cases achieve the long-run cost efficiency (Hazra, 2016; Khan et al., 2022). In addition to environmental performance, procurement systems are fundamentally measured in terms of value for money (VfM). Value for money is the mean of the most economical, most quality and the long-term investment in goods and services (Manta and Mansi, 2024; Huzaema et al., 2025). It is considered crucial for efficient procurement and cost-efficiency at a national level and strategic management of public and private resources procurement. VfM goes beyond the lowest purchase price to also cover fitness for purpose and impact (durability and lifecycle cost), social and environmental impact. Efforts to reduce air emissions, improve resource efficiency, and source sustainable resources show both increased sustainability performance and improved market efficiency (Dangelico et al., 2021; Indrasakti and Wicaksono, 2024).

Notably, Dangelico et al. (2021) stated that value for money is important in shaping green purchase, which will need to incorporate economic rationality in sustainability-based procurement models. But, the potential to create additional value-for-money in a green procurement system is heavily influenced by the ethical core of procurement. Ethical procurement is defined as the transparent, accountable, fair, and free from corruption or favoritism practices of procurement activities (Abouzeid, 2019; Nguyen and Hoai, 2023). Ethical practices control behavior among stakeholders, enhance institutional credibility, and influence decision-making during procurement efforts (Tanrikulu, 2021; Iwerebor et al., 2024; Dou et al., 2025). The organizations that sustain ethical procurement principles are considered to provide stakeholder trust, brand credibility and performance improvement in the long term (David et al., 2024). Most importantly, the ethical standards are now viewed as central to value creation, where ethical improprieties, in turn, contribute to increased spend, poor quality and reputational harm (Adorkor, 2022). An emerging knowledge in an empirical research evidence base highlights the relationships between green procurement, ethical decision-making, and performance. Khan et al. (2022; 2023) showed that green purchasing practices can positively affect the economic and environmental performance through their procurement and thus strengthen the strategic relevance of environmentally responsible procuring. Rasheed et al. (2025) established that organizational abilities and leadership styles also affect the effectiveness of green purchasing practices of the public sector institution.

Inferring from the Natural Resources Based View (NRBV) Model, the current study is aimed to examine the influence of green procurement practices on value for money and the mediating role of ethical procurement in the agricultural sector in Ghana. In Ghanaian context, where procurement is crucial to public financial management, infrastructure construction, and the competitive stance private sector faces in terms of economic

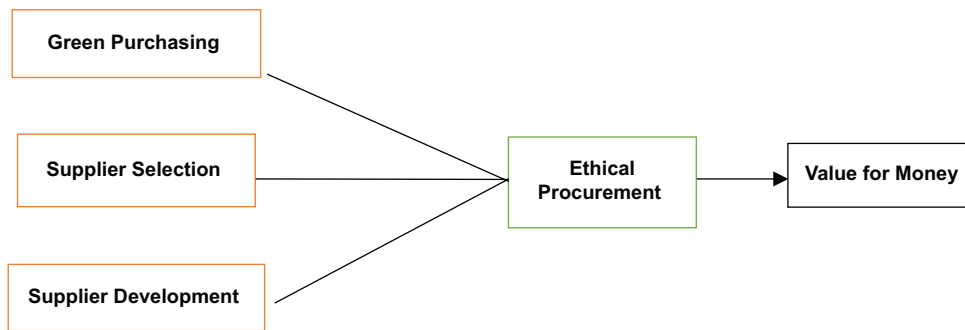
development, green and ethical procurement is becoming more and more important. The country is under growing pressure from environmental degradation, waste management issues and resource waste inefficiencies as well as ongoing criticisms of the integrity and cost-effectiveness of procurement. Given this context, this study conceptualizes the impact of green procurement on the value for money and investigates the role of ethical procurement as a mediator, drawing on evidence from Ghana. The study combines environmental sustainability and ethical governance perspectives, aiming at adding value as to how procurement can provide environmentally responsible systems, institutional and economic structures. Beth Muthoni (2025) determined that ethical procurement is determined by organizational climate, highlighting the social determinants that would enable ethical practices to be realised in performance. Similarly, Adebayo et al. (2024) pointed out that the connection between these three aspects of ethics, compliance and affordability are critical for any future sustainable procurement systems that create lasting financial value for the organisation. Notwithstanding this growing literature stream, extant studies typically consider green procurement and ethical procurement as parallel or independent constructs with little empirical work in which ethical procurement is understood as the mechanism by which green procurement has become value for money especially in developing economy frameworks. This paper is structured into five sections as follows: The section 2 presents the literature review, the section 3 presents the methodology, the section 4 presents the results and discussions and finally, the section 5 presents conclusion and implications.

2. LITERATURE REVIEW

2.1. Theoretical Review and Research Framework

As indicated in Figure 1, the Natural Resource-Based View (NRBV), has been adopted to explain the relationship between green procurement, value for money and ethical procurement in emerging economy context. The theory argues that organisational capabilities for ethical governance, sustainable use of resources and environmental management can act as strategic assets for enhancing performance and long term value generation. Thus, ethical sourcing practices, supplier competencies and environmental stewardship procurement practices are viewed strategically by the framework as organizational strategies to enable organizations to meet environmental and financial targets. The five main ideas of the current investigation value for money, ethical procurement, supplier development, green purchase and supplier selection can be understood within the framework of NRBV (Taherdoost and Brard, 2019; Modares et al., 2025). Green procurement strategies involve environmentally conscious methods to reduce lifespan cost, environmental threat, and resource waste in the procurement process. NRBV requires these competences to function as value-generating resources these skills enhance procurement responsiveness and financial security (as opposed to compliance with moral or legal obligations).

Unlike short term price-sensitive consideration, value for money as an operational tool in this work incorporates whole life performance and total cost of ownership as outcomes of the purchased products and services (Nsiah-Asare et al., 2016;

Figure 1: Research framework

Mungu, 2021). It promotes the optimal balance between impact, sustainability, quality and cost (Global Fund, 2018; Chikwere et al., 2023). This approach agrees with NRBV since it emphasizes that as companies invest in resources which simultaneously contribute to the efficiency of production, environmental protection and institutional legitimacy, results will be better. NRBV states that procurement procedures that account for ethical and environmental aspects in procurement processes will eliminate waste, avoid non-compliance and reputational issues, improve supplier performance, improve life-cycle value, improve efficiency, and create value through sustainability. This theoretical correspondence is also confirmed in empirical evidence. Ahmed et al. (2025) demonstrated that customer's value perceptions are shaped largely by the sustainability-focused organizational context and the communication framework which illustrates how operational competencies merged with sustainability is expected to enhance the overall return in value. These findings support the NRBV hypothesis which asserts that the effectiveness of institutions in managing the social and environmental consequences of resource use is a more significant driver of organisational value.

In public procurement settings sustainability-led procurement systems, government and supplier accountability and transparency systems are needed (Barnett-Clarke et al., 2010; Abere and Muturi, 2015; Kipo-Sunyehzi et al., 2024; Aboelazm, 2025) in order to provide value for money. For example, by eroding the efficiency of organizational resources and institutional trust, administrative problems like corruption, poor professional capacity and the non-compliance issues of regulatory compliance inhibit value creation. NRBV explains these shortcomings as organizational capacities related to the sustainability-linked constraints of the institutions. Ethical procurement processes, on the other hand, represent sustainable investments by nature and the protective resources in terms of salvaging organisational value and increasing accountability and enabling the more efficient conversion of procurement inputs into socioeconomic outcomes. Moreover, the process of supplier management and tendering has proven to significantly add value for money when done strategically (Matto et al., 2021). Supplier development and structured procurement systems make up the relational and operational resources that are pivotal in increasing environmental compliance, service quality, and lifecycle cost management as fundamental processes that ultimately convert sustainability capabilities into economic value through NRBV. To this end, this study provides ethical procurement as a mediating mechanism where green procurement

methods are turned into more financial value. Theoretical support for this mediating structure comes from NRBV, which claims that long-term performance improvements from environmental policies only exist when these policies are embedded within an organization's routines, governance structures and ethical infrastructures. Whereas ethical procurement formalises this orientation into clear enforceable rules that protect organisational resources, maximise suppliers' behaviours and enhance the efficiency of procurement, green purchase is the beginning of the environmental orientation.

2.2. Hypotheses Development

2.2.1. Green purchasing and ethical procurement

Green purchase is a deliberate shift that moves away from the conventional means of procurement based on costs towards an environmentally aware sourcing process that considers long-term sustainability, regulatory compliance, and the environment (Chen and Chang, 2012; Khan et al., 2023). In order to achieve green purchase practices, ethical procurement systems including transparency of supplier involvement, environmental compliance, responsible sourcing, and accountability procedures are part of the system that are needed (Etse et al., 2023; Adebayo et al., 2024; Chanda et al. 2024). An empirical study indicates that organisational environmental orientation, green climates, leadership commitment influence green purchase behavior and are positive antecedents for ethical sourcing behaviour and compliance cultures (Okoth, 2018; Etse and Adu-Aboagye, 2025; Rasheed et al., 2025). Through this new dimension of purchasing green-inclusion means environmental sensitivity (for example sustainable design choices in procurement) and even an ethical stance on both environmental stewardship and social responsibility to be part of all procurement decision-making throughout the supply chain.

- H_1 : Green purchasing has a positive and significant effect on ethical procurement.

2.2.2. Green purchasing and value for money

Green purchase, besides its environmental value, adds value for money by enhancing resource efficiency, reducing waste, promoting creativity and enhancing cost structures over the long run (Khan et al., 2022; Khan et al., 2023). Research has shown improvements in economic performance, operational efficiency and environmental outcomes have all been experimentally tied to sustainable procurement programmes as part of the fundamentals of value for money (Adebayo et al., 2024). Green purchase shifts procurement assessment from a focus on short-term pricing

points, through lifecycle costing, quality improvement and reducing environmental risks, to long-term value optimisation. An empirical study further supports the notion of green marketing and purchasing effects as drivers of the value creation through a strategic contribution on the implementation of the green procurement strategies (Majeed et al., 2022; Etse and Adu-Aboagye, 2025).

- H_2 : Green purchasing has a positive and significant effect on value for money.

2.2.3. Supplier development and ethical procurement

According to Amad et al. (2008) and Laugen et al. (2005), supplier development is a long-term, cooperative process adopted by purchasing organizations, which aims to foster the technical excellence, environmental accountability, supply performance and ethical behaviour of suppliers through the pursuit of cooperation. Findings based on sustainability frameworks and dynamic capabilities indicate that supplier development programmes contribute to ethical compliance, accountability mechanisms and supply chain sustainability integration (Gu et al., 2021; Fan et al., 2021; Feng et al., 2024).

- H_3 : Supplier development has a positive and significant effect on ethical procurement.

2.2.4. Ethical procurement and value for money

Ethical procurement includes fair, accountable and honest supplier relationships and buying choices. On a broader level, as Nsiah-Asare et al. (2016), Israel et al. (2019), and David et al. (2024) state, ethical sourcing systems enhance procurement efficiency, service quality, and lifecycle cost management through the reduction of opportunism and corruption, increasing supplier adherence, and enhancing institutional credibility. Procurement effectiveness, operational performance, and institutional trust are positively related with value for money, but the evidence from practical studies in public and organisational procurement shows that they also play significant roles in the ethical procurement practice (Chimakati and Oduol, 2023; Adebayo et al., 2024). Furthermore, it has brought about better results not only for economic but also for non-economic procurement because it stimulates ethical enforcement techniques that both mitigate and motivate the performance of ethical enforcement, minimisation of risk, performance responsibility and responsible utilization of resources.

- H_4 : Ethical procurement positively and significantly contributes to the value for money.

2.2.5. Ethical procurement as a mediator

Ethical procurement, as a governance and behavioural mechanism, converts strategic procurement methods into long-term performance outcomes. Such initiatives include supplier development and green purchase that influence procurement outcomes through the formation of compliance cultures, accountability frameworks, and ethical environments (Nsiah-Asare et al., 2016; Adebayo et al., 2024). Indeed, empirical studies indicate that ethical procurement drives greater stakeholder trust, operational effectiveness, and procurement performance all necessary to derive value for money (Israel et al., 2019; David et al., 2024).

- H_5 : Ethical procurement mediates value for money and green purchase.

- H_6 : Ethical procurement mediates the value for money and supplier development.
- H_7 : Ethical procurement mediates the value for money and strategic procurement methods.

2.3. Empirical Review: Green Procurement, Ethical Procurement and Value for Money

Table 1 presents an empirical literature review. Growing interest in the area of sustainability and procurement also acknowledges growing recognition emerging for green procurement that green procurement does not occur in a vacuum; its validity and effects largely depend on the ethical and governance tools through which it is operationalized and translates into organizational or public value outputs. Sustainability-based research from sustainability based studies found that green initiatives need both ethical signalling and transparency tools in order to have a positive impact. Chang et al. (2020) used signal theory to demonstrate that information asymmetry concerning green products did not directly incentivize sustainable behaviour unless it is transmitted through credible mechanisms (e.g., reduced excessive packaging and improved psychological ownership).

Although they are grounded in a consumer-specific context, their results raise a wider procurement question: in the absence of ethical behaviour that minimizes misleading signals and opportunism, “green” initiatives may become emblematic and ineffective. This upholds the case that ethical procurement serves as a crucial link through which green initiatives impact performance driven results. The negative effect of weak ethical standards is also confirmed by Lu et al. (2022), that show that perceptions of green washing lead to significant reductions in consumer’s green purchase intentions through higher perception of financial and environmental risk. This indicates that when the ethical claims of green are not credible, stakeholder trust diminishes resulting in less behavioural engagement and less value. Translating this to procurement systems means that ethical procurement safeguards (such as transparency, compliance, and integrity) are key to protecting value for money by limiting risk, inefficiency, and opportunistic behaviour.

Several studies report direct empirical evidence at an institutional and organizational level supporting the relationship between ethical procurement mechanisms and value-for-money outcomes. Mwakolo et al. (2024) showed that transparency, accountability, competition, and integrity have a profound role in realizing the value for money of public construction projects. These dimensions closely correspond with the fundamental tenets of ethical procurement to further confirm that ethical governance is not only a normative issue but also an economic one. Similarly, Changalima et al. (2022) suggested that regulatory compliance is a major catalyst in mediating the relationship between procurement planning and value for money, revealing that the better value delivered from planning can only be realized when integrated in ethical and regulatory procurement framework.

In a Ghanaian setting, Karikari et al. (2022) further illustrated the fact that internal audit effectiveness (on independence, competence

Table 1: Summary of empirical review on green procurement, ethics and value for money

| No. | Author/years | Outcome | Context | Methodology/theories | Findings | Gaps |
|-----|--------------------------------|---|----------------|---|--|---|
| 1. | Joshi et al. (2021) | Economic value, emotional value, perceived marketplace influence | India | Theory of planned behavior/A total of 387 responses was obtained and analyzed using structural equation modeling | Emotional value, perceived marketplace influence, subjective norm, and attitude are key predictors of consumers' green purchase intention | This study did not consider ethical procurement directly but rather focused on green purchasing intentions |
| 2. | Sohel Rana and Mohammad (2023) | Moral identity | Bangladesh | Theory of consumption values/a structured questionnaire mall-intercept survey was used to collect data from 396 respondents, which was subsequently processed using the smart PLS software | Functional value, social value, conditional value and epistemic value are the significant predictors of GPB | The study uncovered certain customer insights that could help accelerate the adoption of green electronic products. These include ethical procurement |
| 3. | Ng et al. (2024) | Green consumption, sustainable development | China | Customer value theory, self-determination theory/three hundred and five participants were recruited, and the findings were analyzed using partial least square structural equation modeling | The three perceived values (i.e., emotional value, functional value, and relational value) significantly predict perceived green product value | Ethical procurement was not directly considered in this study |
| 4. | Galeazzo et al. (2020) | Green procurement, financial performance | Italy | The study sample focuses on the tourism industry and includes data on 122 firms over a 7-year period creating an unbalanced panel with 479 observations | Positive relationship only holds when the moderating effects of tourists' green purchasing behavior are added | This study did not consider ethical procurement and therefore it is imperative to reconsider |
| 5. | Dang Manh et al. (2022) | Environmental corporate social responsibility | Vietnam | Extended theory of planned behavior/the data of 823 consumers using the tool of the mall-intercept survey recruited from several big cities in Vietnam | ECSR initiatives were strongly and positively correlated with attitude towards green products, subjective norms, perceived behavioral and green purchase intention | Lack of studies considering the aspect of consumer social responsibility on their sustainable consumption behavior |
| 6. | Abeyssekera, et al. (2022) | Environmental awareness | Philippines | Theory of planned behavior/used Likert scales to measure and show the subjective probabilities of the relationships of theoretical constructs in the theory of planned behaviour | Respondents awareness of environmental degradation's consequences influences green purchase intention and positively mediates green purchase behavior | This study also did not consider the role of ethical procurement |
| 7. | Changalima et al. (2022) | Procurement regulatory compliance | Tanzania | Theory of regulatory compliance/a cross-sectional research design was adopted from which data were collected once through a structured questionnaire | Procurement planning has a significant and positive relationship with procurement regulatory compliance | This study did not consider ethical procurement and therefore it is imperative to reconsider. |
| 8. | Karikari et al. (2022) | Internal audit effectiveness, Sustainable procurement performance | Ghana | Institutional theory, Contingency theory/this paper is a cross-sectional survey-based study involving public agencies in Ghana | The study has revealed that internal audit competency, internal audit independence, external auditors' role, and top management support are the main determinants of IAE | This study did not consider ethical procurement and therefore it is imperative to reconsider |
| 9. | Almarri (2023) | Public-private partnership | Dubai | Identifying VFM factors in PPP for smart cities based on an extensive literature review | After performing a SEM analysis on the gathered data, the best fitted measurement model consisted of 11 VFM factors acting as indicators of three latent variables for smart infrastructure projects | This study did not consider ethical procurement and therefore it is imperative to reconsider |
| 10. | Kipo-Sunyehzi et al. (2024) | Public procurement policies | Ghana, Nigeria | A comparative case study approach is adopted, where the two countries are compared in terms of achieving value for money | The major administrative challenges found include corruption, low capacity of procurement personnel and poor knowledge of the procurement laws | This study did not consider ethical procurement and therefore it is imperative to reconsider |

(Contd...)

Table 1: (Continued)

| No. | Author/years | Outcome | Context | Methodology/theories | Findings | Gaps |
|-----|-----------------------|--------------------------------|----------|---|--|---|
| 11. | Mwakolo et al. (2024) | Procurement of good governance | Tanzania | Governance theory/the data were sourced from 203 construction project practitioners from 24 selected procuring entities in Tanzania using a census approach and a cross-sectional questionnaire survey | The study revealed a positive and significant impact of various dimensions of PGG on VfM | The study provides insights into how these factors contribute to the successful achievement of VfM outcomes in public construction projects |
| 12. | Ansu-Mensah (2021) | Green product awareness | Ghana | Quantitative research method | Green perceived quality has the utmost significant positive impact on university students' green purchase intentions | The indiscriminate consumption patterns worldwide have brought in its wake severe problems like pollution and global warming |
| 13. | Lu et al. (2022) | Green washing perception | China | Perceived risk theory/in this paper, 433 valid questionnaires are collected from mainland China, and the partial least square-structural equation (PLS-SEM) is used to test the hypotheses | Consumers' perception of green washing in the fast fashion industry has a direct negative effect on their green purchase intention | This study did not consider ethical procurement and therefore it is imperative to reconsider. |
| 14. | Sharma et al. (2022) | Green self-identity | India | Theory of planned behavior, attribution theory/for this study, data from 391 Indian consumers were analyzed using PLS-SEM via SMARTPLS version 3.2.9 | Green self-identity positively influences both Environmental locus of control and Pro-environmental locus of control | This study did not consider ethical procurement and therefore it is imperative to reconsider. |
| 15. | Chang et al. (2020) | Sustainable consumption | Taiwan | Signal theory, psychological ownership theory/the relationships among green product information asymmetry (GPIA), excessive product packaging (EPP), green product psychological ownership (GPPO), and green purchase behavior (GPB) are examined according to signal theory and psychological ownership theory | The study revealed that EPP and GPPO completely mediate the relationship between GPIA and GPB | This study did not consider ethical procurement and therefore it is imperative to reconsider. |

Source: Authors' compilation

and accountability) significantly promotes value for money and sustainable public procurement. Crucially, we also found that value for money was associated with sustainable procurement outcomes, further supporting a bidirectional relationship between ethical controls and sustainability performance. The results of this study underscore that green procurement is firmly embedded along the dimensions of ethical procurement systems, which are sustainable development measures to the environment and provide environmental interests through cost, quality, and long-term value. Comparative and policy-oriented work also illustrates that value for money itself is an ethically managed construct. Kipo-Sunyehzi et al. (2024) showed that Ghana's five rights approach and Nigeria's Four Es framework embed ethical considerations like fairness, equity and efficiency into how procurement success is defined. This bolsters the perspective that value for money is not simply a financial result: it is also a governance result that is driven by ethical procurement principles.

What's more, Almarri (2023) showed that value for money in complex infrastructure projects grows out of connected ethical and managerial dimensions which also include risk assignment, output specification transparency, dispute resolution, and responsibility structures. Such findings do not contradict Galeazzo et al. (2020)

that green procurement does not automatically perform well, without the existence of a stakeholder-oriented and governance-based mechanism, making clear once more it is all about the mediating effect of ethical structures. Relevant to the present study logical implications. Taken together, these studies support one critical finding: good green procurement practices add up only if they are used through robust ethics-based procurement practices. Although green purchasing, supplier choice and supplier development may be hallmarks of environmental accountability, it is ethical procurement via transparency, compliance, accountability and integrity that turns them into reduced risk, efficient resource use, supplier trustworthiness and sustainable cost-quality results.

Yet for all that convergence, the literature reviewed to date has primarily treated green procurement and value for money as twin streams, ignoring, in a way, the mechanistic link of ethical procurement in the role of the mediator. Indeed, the majority of studies on either green adoption or governance effectiveness, have combined them through either or neither. To fill that gap, the current study explicitly models ethical procurement as a transmission mechanism that mediates the link between green procurement practices and value for money outcomes, particularly where value for money is related to the agribusiness sector in a developing economy.

3. RESEARCH METHODOLOGY

3.1. Research Philosophy and Design

This study is based on the positivist research philosophy. It employs a quantitative methodology to build a baseline explanatory model exploring the relationship between green procurement practices and value for money and mediating role of ethical procurement. Positivists argue that reality is objective, observable and measurable, as well as knowledge can be developed through systematic observation, empirical measurement, and statistical analysis. This paradigm maintains an independent role for researchers, where theory develops from hypotheses and the practice of empirical research. A quantitative study has been considered suitable as the study is concerned with quantifiable constructs that need statistical testing to determine the magnitude and direction of effects among variables. Positivist inquiry aligns well with quantitative methods, both of which promote empiricism, objectivity, replicability, and generalizability (Saunders et al., 2012; Zikmund et al., 2013). Since the study aims to explain causal relationships between green procurement practices, ethical procurement, and value for money, an explanatory research design was selected. To facilitate hypothesis testing and estimating models, a survey strategy has been used to systematically gather standardized data from a relatively large population (Zikmund et al., 2010). Cross-sectional design has been used in the study further, with data collected at a single point in time. The cost-effective, time-effective, practical design has been chosen for theory testing based on large populations.

3.2. Population and Sampling Procedures

The study focused on agribusiness enterprises in Ghana as the target population. Supply chains are heterogeneous by nature for agribusiness actors, including primary production, processing, and other value and downstream. The sector includes crop production and animal feed manufacturing, agrochemical inputs, agro-processing, logistics and transportation, warehousing, materials handling, inventory management, and logistics information systems. In order for this diversity and sectoral representativeness to be reflected, these variables were stratified into three general population segments (agricultural: crop production, industrial: Agro-processing and animal feed, and service-oriented agribusiness by logistics, machinery and equipment supply, transportation, and warehousing). These respondents targeted procurement officers, departmental heads, and finance and accounts officers who are engaged directly in procurement planning, supplier engagement, and purchasing decisions. To guarantee organizational relevance and institutional maturity, the sample frame included only firms that were properly registered in Ghana and had been in continued operation for a period of more than 5 years. Following recommendation for SEM, sample size following the 10-times rule, where at least 10 times maximum number of structural paths directed on any latent construct should be adopted to determine the minimum sample (Hair et al., 2014). According to the rule of the proposed model, the minimum sample size was 80, meanwhile, 500 questionnaires were administered to the participants. The study adopted stratified and simple random sampling techniques to select the participants. The clusters of agribusiness producers were identified within each stratum. Finally, simple random

sampling was used within each stratum and cluster to select eligible respondents. This multi-stage sampling approach was adopted due to improving representativeness, reducing sampling bias, and getting an even profile of producers across the broad spectrum of agribusiness.

3.3. Construct Instrumentation and Measurement

The main instrument for data collection was structured questionnaire. Table 2 resents summary of constructs measurements, sources and underlying theory. All of the measurement items were anchored using a seven-point Likert scale ranging from 1 (“strongly disagree”) to 7 (“strongly agree”). Likert scaling was considered appropriate as it helped in expressing the quantitative measurement of attitudes, perceptions and behavioural tendencies and thus enabled subjective judgments to become quantitative and statistically data-analyzed (Upagande and Shende, 2012; Zikmund et al., 2010). Green procurement practices were measured using three -sub-dimensions; namely: supplier selection, green purchasing, and supplier development.

Six items were used in assessing supplier selection, five consisted of green purchasing, and six items were used in assessing supplier development (Rasheed et al., 2025; Etse and Adu-Aboagye, 2025). Value-for-money was measured with nine items derived and modified (Manta and Mansi, 2024; Nsiah-Asare et al., 2016). Instruments of such nature represent lifecycle cost efficiency, quality outcomes, and the performance-based assessment, which in turn are essential to the successful execution of public and private procurement. The operation of ethical procurement was measured with six items adopted from Nguyen and Hoai (2023). These measures were chosen due to their strong citations, empirical verification, and reflectiveness of current collaborative procurement practices.

3.4. Data Analysis

Structural equation modelling (SEM) and SMART-PLS version 4.1.1 have been used to analyse the data and statistically test the hypotheses. SEM combines the features of multiple regression, factor analysis, and path analysis as elements of a single type of analysis. SEM enables the specification of complex relationships and the examination of direct and indirect (mediating) effects, which are not possible for traditional regression-based techniques. In this framework, constructs were represented as

Table 2: Constructs measurement and sources

| Constructs | Number of items | Scale | Source | Underlining theory |
|------------|-----------------|----------------------|------------------------------|--------------------|
| SS | 6 | 7 Point Likert scale | Rasheed et al. (2025) | NRBV model |
| GP | 5 | 7 Point Likert scale | Rasheed et al. (2025) | NRBV model |
| SD | 6 | 7 Point Likert scale | Etse and Adu- Aboagye (2025) | NRBV model |
| EP | 6 | 7 Point Likert scale | Nguyen and Hoai (2023) | NRBV model |
| VfM | 9 | 7 Point Likert scale | Manta and Mansi (2024) | ----- |

Source: Authors compilations. EP: Ethical procurement, GP: Green purchasing, SD: Supplier development, SS: Supplier selection, VIM: Value for money

both exogenous (independent) and endogenous (dependent and mediating) variables, as per the causal assumptions of the theoretical model. The analysis followed the SEM recommended two-stage procedure. Construct reliability and convergent and discriminant validity of the measurement model were determined. Secondly, the structural model was examined based on path coefficients, significance, and explanatory power (R^2), to test the proposed hypotheses and to evaluate the predictors' power of the model.

3.5. Ethical Considerations

Written and verbal informed consent was received from all of the study subjects before data collection was conducted. Participants were provided appropriate information regarding the aim of the study, stated that participation was voluntary and was given the option that they could withdraw from the study at any time with no negative consequences. Confidentiality and anonymity were maintained, no identifying information was collected, and all responses were used only for academic and research purposes. Ethics approval for the study was granted by the Ethics Committee of Universiti Malaysia Terengganu, Malaysia, and all processes.

4. RESULTS AND DISCUSSION

4.1. Respondents' Demographic

As shown in Table 3, roughly three-quarters of the participants (74.8%) are males and the remaining 25.3% are females. With respect to the age groups of the respondents, participant aged between 18 and 25 are 45.5%, 26-35 are 28.5%, 36-45 are 36.5%, participants of 15.8% are aged between 46 and 55, and 56 and above are the least age group among the participants which are 4.8%. With regard to respondents' educational qualification, 10.0% have Basic/SHS, 30.5% have Diploma/HND, 57.0% have Bachelor degree and only PHD/Professional holders are 2.5%. Relating to respondent organizational type, 77.8% works in MMDAs, 5.0% works in Ministry and Private SME, 11.0% works in State own enterprises and 1.3% works in large private firms. As shown in the job designation of the respondents, 17.5% works as administrative staffs, project managers are 27.0%, 20.8% are finances officers, respondents who works as technical officers are 15.5% and accountants are 19.3%. As presented in respondents' years of working experience, 35.5% of respondents have 1-3 years of experience, 47.5% have 4-6 years of experience and 17.0% have worked for 7-10 years. With concern to the job location of the respondents, 56.0% of the respondents are in the urban, 25.5% works in Peri-urban and 18.5% are in the Rural. Lastly, regarding the organizational size of the respondents, 49.3% of organization have 30-99 employees, organization with employees of 6-29 are 25.5%, 15.8% have 100 plus employees and 9.5% have 1-5 employees.

4.2. Descriptive statistics and Normality Assumption

As indicated in Table 4, the study presents the descriptive statistics of the distribution using means, standard deviation, skewness and kurtosis. From the results, the mean value of the model ranged between 4.67 and 4.93 which suggested that majority of the respondents had agreed to the items of Likert's scale, e.g., agree and strongly agree. Moreover, standard deviation values ranged from 1.39 to 1.60 which suggested that there were variations among the respondents on the 7-point scale ($SD > 1$). To test for

Table 3: Respondent demographics profile

| Variables | Frequency (n=400) | Percentage |
|---------------------------|-------------------|------------|
| Gender | | |
| Male | 299 | 74.8 |
| Female | 101 | 25.3 |
| Total | 400 | 100.0 |
| Age groups | | |
| 18-25 | 58 | 14.5 |
| 26-35 | 114 | 28.5 |
| 36-45 | 146 | 36.5 |
| 46-55 | 63 | 15.8 |
| 56 and above | 19 | 4.8 |
| Total | 400 | 100.0 |
| Educational qualification | | |
| Basic/SHS | 40 | 10.0 |
| Diploma/HND | 122 | 30.5 |
| Bachelor Degree | 228 | 57.0 |
| PHD/Professional | 10 | 2.5 |
| Total | 400 | 100.0 |
| Organizational type | | |
| MMDAs | 311 | 77.8 |
| Ministry | 20 | 5.0 |
| State own enterprises | 44 | 11.0 |
| Private SME | 20 | 5.0 |
| Large private firm | 5 | 1.3 |
| Total | 400 | 100.0 |
| Job designation | | |
| Administration staff | 70 | 17.5 |
| Project managers | 108 | 27.0 |
| Finances officer | 83 | 20.8 |
| Technical officer | 62 | 15.5 |
| accountants | 77 | 19.3 |
| Total | 400 | 100.0 |
| Years of experiences | | |
| 1-3 years | 142 | 35.5 |
| 4-6 years | 190 | 47.5 |
| 7-10 years | 68 | 17.0 |
| Total | 400 | 100.0 |
| Job location | | |
| Urban | 224 | 56.0 |
| Rural | 74 | 18.5 |
| Peri-urban | 102 | 25.5 |
| Total | 400 | 100.0 |
| Organizational size | | |
| 1-5 employee | 38 | 9.5 |
| 6-29 employee | 102 | 25.5 |
| 30-99 employee | 197 | 49.3 |
| 100+employee | 63 | 15.8 |
| Total | 400 | 100.0 |

Source: Field Survey, 2024

normality of the model, skewness and kurtosis were assessed. For a distribution to be normal, skewness should range from -3 to 3 and kurtosis -7 - 7 . The results show that both skewness and kurtosis are within the acceptable range. Therefore, the distribution is normal.

4.3. Convergent validity and Discriminant Validity

Table 5 presents the results of the convergent validity. The convergent validity was assessed using the Cronbach Alpha (CA), composite reliability (CR), average variance extracted (AVE) and factor loadings. As shown in Table 5, the CA scores ranged from 0.892 to 0.956 exceeding the acceptable minimum score 0.70, the CR scores ranged from 0.921 to 0.962 which were higher than 0.70, AVEs scores ranged from 0.699 to 0.787 exceeding the minimum

Table 4: Descriptive statistics

| Constructs (Indicators) | Min | Max | Mean±Standard deviation | | Skewness | | Kurtosis | |
|----------------------------|-----|-----|-------------------------|----------------|-----------|----------------|-----------|----------------|
| | | | Statistic | Standard error | Statistic | Standard error | Statistic | Standard error |
| GPI | 1 | 7 | 4.83±1.48 | | -0.367 | 0.122 | -0.494 | 0.243 |
| GP2 | 1 | 7 | 4.73±1.47 | | -0.284 | 0.122 | -0.367 | 0.243 |
| GP3 | 1 | 7 | 4.84±1.53 | | -0.197 | 0.122 | -0.734 | 0.243 |
| GP4 | 1 | 7 | 4.84±1.46 | | -0.224 | 0.122 | -0.571 | 0.243 |
| GP5 | 1 | 7 | 4.86±1.48 | | -0.309 | 0.122 | -0.543 | 0.243 |
| GP5 | 1 | 7 | 4.81±1.60 | | -0.340 | 0.122 | -0.847 | 0.243 |
| EP2 | 1 | 7 | 4.83±1.50 | | -0.241 | 0.122 | -0.741 | 0.243 |
| EP3 | 1 | 7 | 4.80±1.55 | | -0.340 | 0.122 | -0.587 | 0.243 |
| EP4 | 1 | 7 | 4.69±1.51 | | -0.212 | 0.122 | -0.530 | 0.243 |
| EP5 | 1 | 7 | 4.72±1.60 | | -0.244 | 0.122 | -0.783 | 0.243 |
| EP6 | 1 | 7 | 4.75±1.50 | | -0.366 | 0.122 | -0.493 | 0.243 |
| SD1 | 1 | 7 | 4.93±1.46 | | -0.241 | 0.122 | -0.597 | 0.243 |
| SD2 | 1 | 7 | 4.79±1.54 | | -0.264 | 0.122 | -0.456 | 0.243 |
| SD3 | 1 | 7 | 4.72±1.56 | | -0.291 | 0.122 | -0.573 | 0.243 |
| SD4 | 1 | 7 | 4.75±1.52 | | -0.242 | 0.122 | -0.666 | 0.243 |
| SD5 | 1 | 7 | 4.67±1.52 | | -0.268 | 0.122 | -0.494 | 0.243 |
| SD6 | 1 | 7 | 4.87±1.39 | | -0.191 | 0.122 | -0.572 | 0.243 |
| SS1 | 1 | 7 | 4.77±1.50 | | -0.222 | 0.122 | -0.443 | 0.243 |
| SS2 | 1 | 7 | 4.68±1.54 | | -0.222 | 0.122 | -0.527 | 0.243 |
| SS3 | 1 | 7 | 4.80±1.46 | | -0.347 | 0.122 | -0.336 | 0.243 |
| SS4 | 1 | 7 | 4.76±1.46 | | -0.267 | 0.122 | -0.526 | 0.243 |
| SS5 | 1 | 7 | 4.88±1.49 | | -0.315 | 0.122 | -0.640 | 0.243 |
| SS6 | 1 | 7 | 4.83±1.49 | | -0.322 | 0.122 | -0.247 | 0.243 |
| VfM1 | 1 | 7 | 4.85±1.51 | | -0.309 | 0.122 | -0.513 | 0.243 |
| VfM2 | 1 | 7 | 4.81±1.49 | | -0.269 | 0.122 | -0.500 | 0.243 |
| VfM3 | 1 | 7 | 4.74±1.47 | | -0.209 | 0.122 | -0.594 | 0.243 |
| VfM4 | 1 | 7 | 4.67±1.47 | | -0.211 | 0.122 | -0.408 | 0.243 |
| VfM5 | 1 | 7 | 4.86±1.48 | | -0.309 | 0.122 | -0.543 | 0.243 |
| VfM6 | 1 | 7 | 4.75±1.51 | | -0.219 | 0.122 | -0.604 | 0.243 |
| VfM7 | 1 | 7 | 4.80±1.54 | | -0.267 | 0.122 | -0.595 | 0.243 |
| VfM8 | 1 | 7 | 4.84±1.47 | | -0.273 | 0.122 | -0.567 | 0.243 |
| VfM9 | 1 | 7 | 4.68±1.56 | | -0.297 | 0.122 | -0.471 | 0.243 |

EP: Ethical procurement, GP: Green purchasing, SD: Supplier development, SS: Supplier selection, VfM: Value for money

requirement 0.50. Also, for factor loadings to be acceptable a minimum score of 0.70 was required. The result shows that the factor loadings scores were greater than the minimum requirement scores. As seen in Figure 2, the loadings ranged from range 0.750 to 0.925. These results indicate that the model has met all the requirement and therefore convergent validity has been assessed. Tables 6 and 7 present the results of the discriminant validity were assessed using the Heterotrait-Monotrait (HTMT) Ratio and Fornell-Larcker (1981) criteria and Cross Loadings (Appendix). As indicated in Table 7, the results showed that HTMT scores ranged from 0.835 to 0.847 which were within the acceptable range of 0.85. Therefore, discriminant validity has been met. These results have been complemented by using Fornell-Larcker (1981) criteria and cross loadings (Appendix). The test for Fornell and Larcker has been assessed using the square roots of AVEs. For Fornell and Larcker to be acceptable, the square roots of AVEs should be higher than the inter-constructs correlation scores. The results show that the square roots of AVEs scores were higher than the inter-construct and therefore, the model has met the requirement of discriminant validity.

4.4. Path co-Efficient and Hypothesis

As showed in Figure 7, the predictive power of the model ranged between 65.4% and 74.5% suggesting that the model is fit and stronger. As shown in Table 8, the study reveals that,

Table 5: Construct reliability and validity

| Constructs | Cronbach's alpha | Composite reliability (rho _a) | Composite reliability (rho _c) | Average variance extracted (AVE) |
|------------|---------------------|---|---|--|
| EP | 0.946 | 0.948 | 0.957 | 0.787 |
| GP | 0.918 | 0.923 | 0.937 | 0.714 |
| SD | 0.892 | 0.893 | 0.921 | 0.699 |
| SS | 0.915 | 0.917 | 0.934 | 0.703 |
| VfM | 0.956 | 0.958 | 0.962 | 0.719 |

EP: Ethical procurement, GP: Green purchasing, SD: Supplier development, SS: Supplier selection, VfM: Value for money

Table 6: Heterotrait-Monotrait ratio (HTMT) - matrix

| Constructs | Ethical procurement | Green purchasing | Supplier development | Supplier selection | Value for money |
|------------|------------------------|---------------------|-------------------------|-----------------------|--------------------|
| EP | | | | | |
| GP | 0.704 | | | | |
| SD | 0.758 | 0.714 | | | |
| SS | 0.835 | 0.772 | 0.700 | | |
| VfM | 0.847 | 0.800 | 0.707 | 0.753 | |

EP: Ethical procurement, GP: Green purchasing, SD: Supplier development, SS: Supplier selection, VfM: Value for money

EP has positive and significant effect (B = 0.810, T-statistics = 38.425) on VfM, GP has positive and significant effect (B = 0.455, T-statistics = 8.201) on EP, SD has positive and

Figure 2: Items loading

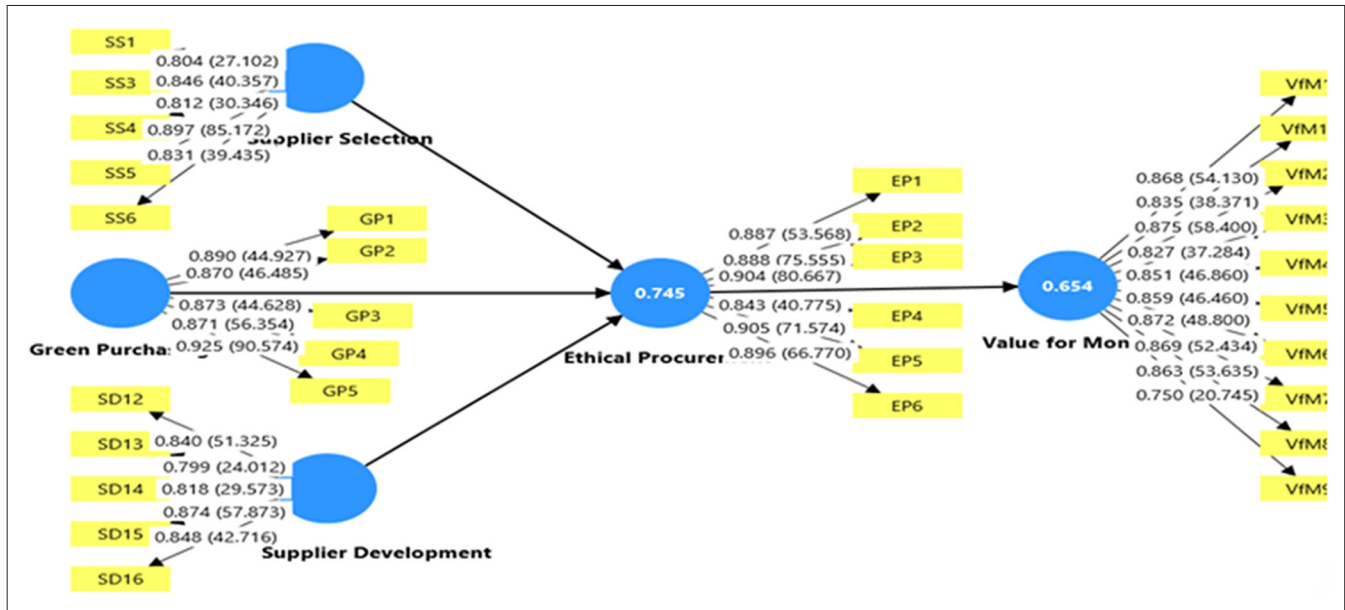


Table 7: Fornell-Larcker (1981) criterion

| Constructs | Average variance extracted | Ethical procurement | Green purchasing | Supplier development | Supplier selection | Value for money |
|------------|----------------------------|---------------------|------------------|----------------------|--------------------|-----------------|
| EP | 0.787 | 0.887 | | | | |
| GP | 0.714 | 0.844 | 0.845 | | | |
| SD | 0.699 | 0.790 | 0.825 | 0.836 | | |
| SS | 0.703 | 0.779 | 0.797 | 0.812 | 0.838 | |
| VfM | 0.719 | 0.809 | 0.841 | 0.839 | 0.799 | 0.848 |

The square root of AVEs are presented in a diagonal. EP: Ethical procurement, GP: Green purchasing, SD: Supplier development, SS: Supplier selection, VfM: Value for money

Table 8: Path coefficients

| Hypothesized-Path | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics ((O/STDEV)) | P-values |
|---------------------------|---------------------|-----------------|----------------------------|--------------------------|----------|
| Direct effects | | | | | |
| EP->VfM | 0.809 | 0.810 | 0.021 | 38.425 | 0.000 |
| GP->EP | 0.457 | 0.455 | 0.056 | 8.201 | 0.000 |
| SD->EP | 0.217 | 0.218 | 0.065 | 3.329 | 0.001 |
| SS->EP | 0.252 | 0.255 | 0.059 | 4.241 | 0.000 |
| Specific indirect effects | | | | | |
| GP->EP->VfM | 0.370 | 0.368 | 0.045 | 8.166 | 0.000 |
| SD->EP->VfM | 0.175 | 0.177 | 0.054 | 3.245 | 0.001 |
| SS->EP->VfM | 0.204 | 0.206 | 0.048 | 4.265 | 0.000 |

EP: Ethical procurement, GP: Green purchasing, SD: Supplier development, SS: Supplier selection, VfM: Value for money

significant effect (B = 0.218, T-statistics = 3.329) on EP, SS has positive and significant effect (B = 0.255, T-statistics = 4.241) on EP. Concerning the indirect effects, the result shows that EP has significantly mediated (B = 0.368, T-statistics = 8.166) the relationship between GP and VfM, EP has significantly mediated (B = 0.1777, T-statistics = 3245) the relationship between SD and VfM and lastly, EP has significantly mediated (B = 0.206, T-statistics = 4.265) the relationship between SS and VfM. Therefore, 7 overall hypotheses have been supported. Thus EP, GP, SD, and SS are determinants of VfM. In sum, the results have showed that green procurement practices (proxied as green purchasing, supply selection, and supplier development) all the three dimensions have significant effects on ethical procurement. The study further revealed that ethical procurement has significant effects on value for

money. Moreover, ethical procurement significantly mediates the relationship between green procurement dimensions e.g., green purchasing, supply selection, and supplier development and value for money.

4.5. Importance – Performance Matrix Analysis

Table 9 details the outcomes of the importance–performance matrix analysis (IPMA) used to extend the findings from the PLS-SEM with an overview of the importance (total effects) of each predictor construct on value for money and their performance levels (scaled from 0 to 100). IPMA uses the interplay of high importance and low performance to identify priority areas for managerial and policy intervention. The results show that ethical procurement (EP) is the best predictor of value for money with a total effect of 0.809, significantly greater than green purchasing

Figure 3: Path coefficient with P-values

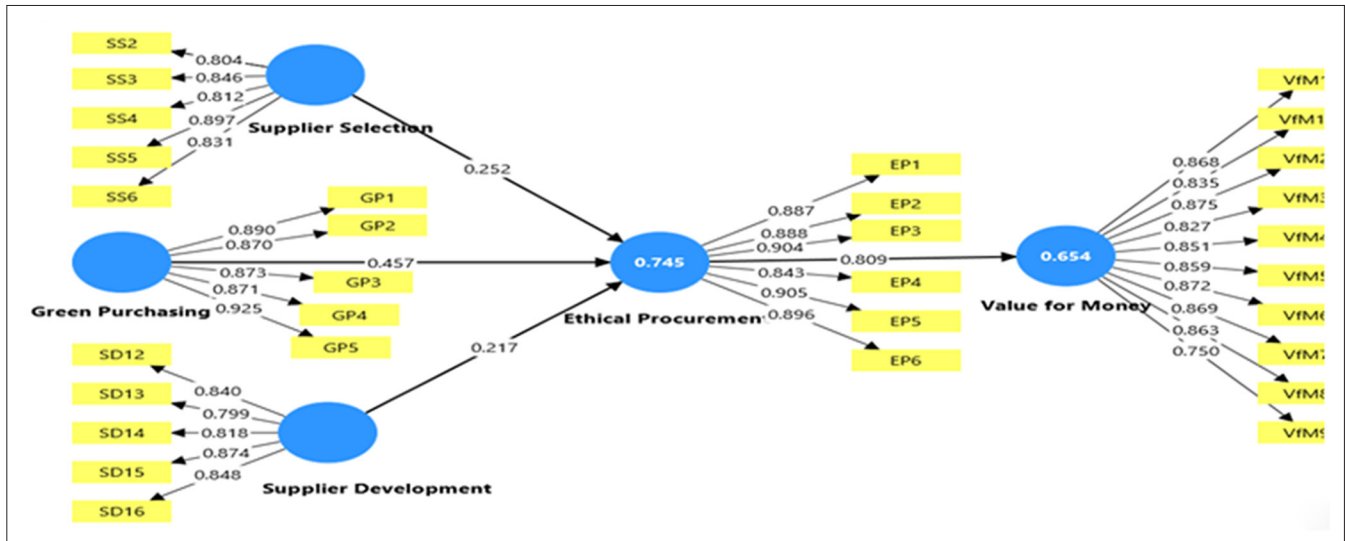


Table 9: Importance–performance matrix analysis (IPMA)

| Predictor constructs | Importance (total effect) | Performance (0-100) | Priority ranking |
|----------------------|---------------------------|---------------------|------------------|
| EP | 0.809 | 62.785 | |
| GP | 0.370 | 63.658 | |
| SD | 0.175 | 62.857 | |
| SS | 0.204 | 63.172 | |

EP: Ethical procurement, GP: Green purchasing, SD: Supplier development, SS: Supplier selection

(0.370), supplier selection (0.204), and supplier development (0.175). This means that shifts in ethical procurement principles are expected to produce the largest marginal improvements in value for money outcomes. Ethical procurement thus emerges as the only strong leverage point in the model, confirming its central mediating and performance-enhancing function. When assessing performance, the performances for all constructs have moderate estimates and clustered to around 62-64, meaning that although green and ethical procurement practices exist in sample organizations, they are not yet on a high-performance basis. Ethical procurement has a performance score of 62.785, which, despite its dominant importance, is not the highest among the predictors. This results in a critical importance–performance gap, making ethical procurement the primary strategic imperative for progress. Importance values for supplier selection (SS) and supplier development (SD) are much lower (0.204, 0.175), and performance measures are comparable with those of other constructs. These are still relevant elements of green procurement, to be sure, but their marginal contribution to the value for money is weaker compared to ethical procurement and green purchasing. As a result, although it would be better to be a part of an enhancement in supplier selection and development, as a whole such efforts will be secondary to the improvement of ethical procurement systems and the integration and embedding of green purchasing standards.

5. DISCUSSION OF RESULTS

This research investigated the effect of green procurement practices on ethical procurement and value for money as well as the mediating role of ethical procurement. The empirical results show that green purchasing, supplier selection, and supplier development have significantly positive effects on ethical procurement. Furthermore, ethical procurement positively impacts value for money and supports the relationships that emerge between green procurement practices and value for money. These results support the study’s theoretical construction and its hypotheses with substantial empirical evidence. Consistent with H₁, the results support that green purchasing has a meaningful positive influence on ethical procurement. The results also reinforce the finding that supplier development plays a major role in ethical procurement, adding further support for the H₃ idea (Chang et al., 2020; Sharma et al., 2022; Lu et al., 2022; Almarri, 2023).

These supplier development initiatives (training, performance assessment, environmental audit, collaborative improvement) seem to embed moral norms in procurement organizations by developing transparency and greater accountability across procurement networks. With such mechanisms in place, purchasing companies not only enhance technical and environmental capabilities of suppliers, but also strengthen ethical expectations. In addition, the findings indicate that ethical procurement has a significant positive impact on value for money, which confirms H₄. This suggests that ethical purchasing not only is a normative tool but also a performance driver in strategic context. The fact that ethical procurement minimizes risks of corruption, increases compliance, improves supplier credibility and quality drives direct impacts on procurement efficiency, reduced costs, and higher life-cycle value. These results substantiate the fact that ethical governance structures have a multiplier effect on both the economic and institutional aspects

of value for money (Ansu-Mensah, 2021; Karikari et al., 2022; Mwakolo et al., 2024; Kipo-Sunyehzi et al., 2024).

Critically, the study highlights significant mediating factors of ethical procurement on the relationships between green procurement practices and value for money, also confirming H_5 , H_6 and H_7 . This mediating effect also supports the finding that green purchasing, supplier selection, and supplier development impact value for money through improved operational outcomes but also indirectly through changes in ethical climate and governance systems (Galeazzo, et al., 2020; Dang Manh et al., 2022; Abeysekera et al., 2022). Green procurement initiatives are essentially the formation of environmental and strategic orientations, but ethical procurement is what turns these orientations into accountable procurement decision-making, transparent supplier relationships and performance-based procurement outcomes. In this sense, ethical procurement serves as an essential transmission channel for developing sustainability-oriented procurement techniques for tangible value results. These findings collectively suggest that in order to gain value for money in modern procurement systems, the solution lies not only in technical green practices (Joshi et al., 2021; Changalima et al., 2022; Sohail Rana and Mohammad, 2023; Ng et al., 2024).

6. CONCLUSION AND IMPLICATIONS

6.1. Conclusion

This study aimed to model the influence of green procurement practices on value for money as well as to investigate the mediating role of ethical procurement on value for money within the Ghanaian agribusiness sector. Based on empirical evidence, the empirical results show that green procurement practice as manifested through green purchasing, supplier selection, and supplier development have a significant strengthening effect on ethical procurement. The findings also indicate that ethical procurement has a significant positive impact on value for money. Most importantly, ethical procurement was concluded to be a significant mediator between the green procurement practices and value for money. These results suggest that while green procurement adds environmental and strategic orientations toward the organizational purchasing system, ethical procurement is the institutional means by which these orientations are translated through to accountable decisions, effective procedures, and performance improvement of effectiveness. The research thus proposes that sustainable procurement is only to find its maximum financial and institutional gains if it operates within strong and well-functioning ethical governance. Given the escalating procurement risks, compliance gaps, and limited resources in the context of developing economies, ethical procurement is seen as the key channel through which sustainability measures link to value creation.

6.2. Theoretical Contributions

Several key contributions emerge from this study to procurement and sustainability theory. Firstly, it contributes to the green procurement literature by empirically illustrating that the value in production of green procurement does not arise in an unmechanical manner but is structurally mediated (and built on) by ethical

procurement systems. The study also improves an understanding of how and why sustainability practices are implemented and the processes adopted in this study by placing ethical procurement as one of the central rational mechanisms of explanation. Second, the study further advances the Natural Resource-Based View and sustainable supply chain theory through a perspective of ethical procurement as a strategic organizational capability that safeguards resources, enhances governance, and maximizes value throughout product lifecycle. The findings shift the discourse away from seeing ethical procurement as a mere compliance framework to a performance infrastructure. Third, the study combines green purchasing, supplier selection, and supplier development into one explanatory model to offer a richer theoretical framework that can address sustainable procurement systems. This integrated model enhances theory by treating both the operational and governance aspects of the concept of procurement sustainability and the joint role of each to achieve value for money, and more especially, within institutional environments of emerging economies.

6.3. Policy Implications

In addition, it has implications for public procurement authorities, regulatory authorities, and national sustainability policymakers. This suggests that procurement strategies need to evolve beyond relatively prescriptive sustainability compliance checklists toward an institutional approach wherein the ethical requirements of procurement within the context of green procurement mandates are articulated. This encompasses not only mandatory ethical certification of suppliers, unified environmental–ethical procurement protocols, and measures that establish enforceable relationships between sustainability performance and contract eligibility. Third, capacity-building interventions are essential. More effective use of this toolkit can only be achieved by prioritizing professional training programs for policymakers in which procurement officers are trained and equipped in green evaluation methods, ethical risk management, and lifecycle cost assessment. Investing in procurement professionalism will enhance institutional capacity so that the ability of a firm to translate sustainability programmes to tangible value for money outcomes. Finally, ethical green procurement should be viewed by national development frameworks, both at the national level and local level as part of national development strategies, as a strategic tool to attain sustainable development goals, as part of a framework of national development plans, for the development of local industry and industry sectors and to bolster public trust in their procurement entities.

6.4. Managerial Implications

For leaders and purchasing managers, the results have implications since they raise the issue for organizational managers and procurement managers that implementing green procurement practices is not necessarily going to lead to better performance. Managers will have to consciously institutionalise systems of ethical procurement where it becomes the norm that sustainability commitments are practiced in daily decision-making processes when it comes to ethical procurement. First, companies need to embed ethical procurement in procurement processes, supplier codes of conduct, contract and procurement strategies, contract management systems, and performance assessment systems

throughout the whole organization. Explicit ethical standards, transparent supplier screening mechanisms, responsible supplier assessment rules, and monitoring for compliance are needed to drive the delivery of these green-procurement initiatives into the procurement system as accountable and efficient, value-driven solutions. Second, they should invest in structured supplier development programs that integrate environmental capability-building with ethical compliance training. Cooperative supplier engagement – such as auditing, joint improvement initiatives, and knowledge-sharing platforms – will enhance environmental performance and corporate ethical alignment throughout the value chain. Third, purchasing leadership needs to integrate value-for-money thinking into sustainability strategies by using lifecycle costing instruments, performance-based contracting, and sustainability-linked procurement metrics. They can be set up to help managers to capture long-term cost savings, quality progress, and risk savings, as outcomes of ethical green procurement. For organizations looking to maximize value for money, ethical procurement should therefore be understood more as a strategic capability that aligns sustainability objectives, operational excellence, and institutional credibility, rather than an administrative requirement, as the study notes.

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APPENDIX

| Cross loadings | | | | | |
|----------------|---------------------|------------------|----------------------|--------------------|-----------------|
| Items | Ethical procurement | Green purchasing | Supplier development | Supplier selection | Value for money |
| GPI | 0.750 | 0.883 | 0.715 | 0.728 | 0.701 |
| GP2 | 0.686 | 0.850 | 0.701 | 0.642 | 0.686 |
| GP3 | 0.726 | 0.906 | 0.702 | 0.665 | 0.721 |
| GP4 | 0.750 | 0.865 | 0.700 | 0.649 | 0.690 |
| GP5 | 0.887 | 0.575 | 0.761 | 0.724 | 0.779 |
| GP6 | 0.889 | 0.548 | 0.692 | 0.672 | 0.727 |
| EP1 | 0.721 | 0.903 | 0.731 | 0.730 | 0.710 |
| EP2 | 0.625 | 0.843 | 0.655 | 0.633 | 0.637 |
| EP3 | 0.636 | 0.905 | 0.636 | 0.662 | 0.693 |
| EP4 | 0.720 | 0.896 | 0.720 | 0.717 | 0.749 |
| EP5 | 0.670 | 0.840 | 0.721 | 0.679 | 0.682 |
| SD1 | 0.621 | 0.636 | 0.799 | 0.704 | 0.652 |
| SD2 | 0.660 | 0.691 | 0.818 | 0.668 | 0.738 |
| SD3 | 0.680 | 0.744 | 0.874 | 0.684 | 0.736 |
| SD4 | 0.670 | 0.664 | 0.848 | 0.663 | 0.696 |
| SD5 | 0.612 | 0.666 | 0.804 | 0.648 | 0.647 |
| SD6 | 0.600 | 0.629 | 0.800 | 0.547 | 0.616 |
| SS1 | 0.638 | 0.645 | 0.674 | 0.836 | 0.651 |
| SS2 | 0.665 | 0.675 | 0.698 | 0.846 | 0.737 |
| SS3 | 0.634 | 0.642 | 0.611 | 0.812 | 0.649 |
| SS4 | 0.708 | 0.757 | 0.732 | 0.897 | 0.725 |
| SS5 | 0.667 | 0.655 | 0.668 | 0.831 | 0.636 |
| SS6 | 0.738 | 0.879 | 0.749 | 0.815 | 0.545 |
| VfM1 | 0.724 | 0.743 | 0.776 | 0.701 | 0.875 |
| VfM2 | 0.650 | 0.681 | 0.690 | 0.636 | 0.827 |
| VfM3 | 0.671 | 0.674 | 0.687 | 0.641 | 0.851 |
| VfM4 | 0.666 | 0.710 | 0.708 | 0.687 | 0.859 |
| VfM5 | 0.685 | 0.712 | 0.719 | 0.681 | 0.872 |
| VfM6 | 0.680 | 0.694 | 0.694 | 0.682 | 0.869 |
| VfM7 | 0.714 | 0.727 | 0.704 | 0.700 | 0.863 |
| VfM8 | 0.606 | 0.640 | 0.618 | 0.644 | 0.750 |
| VfM9 | 0.721 | 0.456 | 0.731 | 0.730 | 0.875 |

Heterotrait-Monotrait ratio (HTMT) - list

| Paths | Heterotrait-Monotrait ratio (HTMT) |
|----------|------------------------------------|
| GP<->EP | 0.904 |
| SD<->EP | 0.858 |
| SD<->GP | 0.914 |
| SS<->EP | 0.835 |
| SS<->GP | 0.872 |
| SS<->SD | 0.900 |
| VfM<->EP | 0.847 |
| VfM<->GP | 0.900 |
| VfM<->SD | 0.907 |
| VfM<->SS | 0.853 |

EP: Ethical procurement; GP: Green purchasing, SD: Supplier development;
SS: Supplier selection, VfM: Value for money

| 4.8. Q-square, R-square and F-square | | | | | |
|--------------------------------------|---------------------|------------------|----------------------|--------------------|-----------------|
| Table 8: F-square | | | | | |
| Construct | Ethical procurement | Green purchasing | Supplier development | Supplier selection | Value for money |
| EP | | | | | 1.892 |
| GP | 0.292 | | | | |
| SD | 0.038 | | | | |
| SS | 0.052 | | | | |
| VfM | | | | | |

EP: Ethical procurement, GP: Green purchasing, SD: Supplier development, SS: Supplier selection, VfM: Value for money

| Table 8.2: List | |
|-----------------|------------------------------|
| Path | F-square |
| EP->VfM | 1.892 |
| GP->EP | 0.292 |
| SD->EP | 0.038 |
| SS->EP | 0.052 |
| R-square | R-square (R-square adjusted) |
| EP | 0.752 (0.750) |
| VfM | 0.654 (0.653) |

R-square adjusted is presented in the parenthesis form. EP: Ethical procurement, GP: Green purchasing, SD: Supplier development, SS: Supplier selection, VfM: Value for money

| Collinearity Statistics (VIF) | |
|-------------------------------|-------|
| Outer model - List | |
| Items | VIF |
| ESI1 | 3.217 |
| ESI2 | 2.937 |
| ESI3 | 4.701 |
| ESI4 | 3.102 |
| GESM11 | 3.691 |
| GESM12 | 3.838 |
| GESM13 | 3.991 |
| GESM14 | 3.144 |
| GESM15 | 4.328 |
| GESM16 | 3.780 |
| SD12 | 2.256 |
| SD13 | 2.001 |
| SD14 | 2.137 |
| SD15 | 2.827 |
| SD16 | 2.381 |
| SP5 | 1.584 |
| SS1 | 2.252 |
| SS2 | 2.708 |
| SS3 | 2.712 |
| SS4 | 2.430 |
| SS5 | 3.727 |
| SS6 | 2.649 |
| VfM1 | 4.485 |
| VfM10 | 3.926 |
| VfM11 | 3.052 |
| VfM2 | 5.056 |
| VfM3 | 3.957 |
| VfM4 | 3.545 |
| VfM5 | 4.464 |
| VfM6 | 5.142 |
| VfM7 | 5.042 |
| VfM8 | 4.367 |
| VfM9 | 2.238 |

| Inner model - matrix | | | | | |
|----------------------|---------------------|------------------|----------------------|--------------------|-----------------|
| Construct | Ethical procurement | Green purchasing | Supplier development | Supplier selection | Value for money |
| EP | | | | | 1.000 |
| GP | 3.685 | | | | |
| SD | 3.942 | | | | |
| SS | 3.449 | | | | |
| VfM | | | | | |

EP: Ethical procurement, GP: Green purchasing, SD: Supplier development, SS: Supplier selection, VfM: Value for money

| Inner model - list | |
|--------------------|-------|
| Path | VIF |
| EP->VfM | 1.000 |
| GP->EP | 3.685 |
| SD->EP | 3.942 |
| SS->EP | 3.449 |

EP: Ethical procurement, GP: Green purchasing, SD: Supplier development, SS: Supplier selection, VfM: Value for money

| Model fit | | |
|-------------|-----------------|-----------------|
| Fit summary | | |
| Construct | Saturated model | Estimated model |
| SRMR | 0.054 | 0.087 |
| d_uls | 1.639 | 4.239 |
| d_g | 1.597 | 1.736 |
| Chi-square | 3288.348 | 3450.420 |
| NFI | 0.782 | 0.771 |