



RESEARCH ARTICLE

Transparency in Public Procurement: Its Influence on Sustainable Development Initiatives in Caraga Region, Philippines

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ARTICLE INFO	ABSTRACT
Received: Sep 18, 2024	<p>This study investigates the relationship between transparency in public procurement processes and sustainable development within the context of the Philippines, grounded in the principal-agent theory. The findings reveal that suppliers perceive high levels of transparency, indicating that current policies effectively bridge the principal-agent gap, fostering trust and collaboration. Suppliers also show a strong commitment to sustainable practices, aligning their operations with broader societal goals and reflecting responsible business conduct within the Philippine setting. The significant relationship between procurement transparency and sustainable development initiatives highlight transparency as a crucial factor in promoting sustainability. By enhancing transparency, stakeholders can improve procurement efficiency and encourage suppliers to adopt environmentally and socially responsible practices. Additionally, the critical roles of supplier participation and effective communication underscore the need for continuous improvement to create an inclusive procurement environment. The study also emphasizes the importance of fairness, timely information, and procedural transparency in building public trust and community engagement. By addressing information asymmetry, stakeholders can mitigate imbalances and enhance supplier participation, fostering a competitive procurement landscape. These findings offer actionable insights for policymakers and procurement officials in the Philippines, while also contributing to global discussions by highlighting transparency and sustainable practices as essential components of effective governance and sustainable community development.</p>
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INTRODUCTION

Transparency in public procurement plays a vital role in advancing sustainable development, especially in regions like Caraga in the Philippines, where governance challenges and economic pressures coexist. Public procurement, a significant driver of government spending, influences how resources are allocated and utilized, making it crucial for promoting efficiency, reducing corruption, and achieving Sustainable Development Goals (SDGs) (Kumar, 2022). In regions like Caraga, where natural resources are abundant but economic development lags, ensuring transparent procurement practices becomes essential for fostering equitable and sustainable growth (Boquet, 2017). The Philippine Government has made notable reforms to promote transparency in public procurement, particularly through the Philippine Government Electronic Procurement System (PhilGEPS) (Philippine Government Electronic Procurement System, n.d.). This digital platform centralizes

procurement information, allowing for easier public access and real-time monitoring of procurement activities. By enhancing visibility and reducing opportunities for corruption, PhilGEPS aims to improve the efficiency and accountability of public spending. Moreover, the government's adoption of green public procurement policies ensures that environmental sustainability is embedded in procurement decisions, further aligning public spending with SDGs (Lăzăroiu et al., 2020).

However, despite these reforms, regions like Caraga face persistent challenges in fully implementing transparent procurement systems. Limited resources, institutional weaknesses, and historical corruption hinder the effectiveness of these efforts (Kolstad & Søreide, 2009). Transparency is crucial for addressing these issues, as it ensures that contracts are awarded based on merit, fostering competition and improving project outcomes. It also promotes public trust in government institutions, which is essential for long-term development (Halachmi & Greiling, 2013). In Caraga, transparent procurement is particularly critical given the region's reliance on environmentally sensitive industries like mining and agriculture. Ensuring that public contracts in these sectors are awarded fairly and in line with environmental standards can help protect the region's natural ecosystems while supporting economic growth. Additionally, transparent procurement ensures efficient use of public funds, maximizing the impact of government projects in a region where resources are often scarce.

Transparency in public procurement is a cornerstone of sustainable development, particularly in regions like Caraga where governance challenges and development needs are acute (May, 2002). By ensuring openness, fairness, and accountability in procurement processes, transparency helps combat corruption, promote efficient resource allocation, and support the achievement of SDGs. While the Philippine Government has made significant strides in enhancing transparency through initiatives like PhilGEPS and green procurement policies, more work is needed to address the challenges that local governments face in implementing these reforms. This study will provide valuable insights into how transparency in public procurement can be strengthened in Caraga, ultimately contributing to the region's long-term sustainable development.

THEORETICAL FRAMEWORK

This research is anchored in the principal-agent theory of (Mitnick, 1975), which underscores the inherent agency problems in public procurement processes. In this context, government officials (the agents) are entrusted with making procurement decisions on behalf of the public (the principals). The challenge lies in aligning the agents' interests with those of the principals, ultimately leading to more transparent and efficient procurement practices. Suppliers, as key respondents, play a critical role in this dynamic, providing essential insights into the effectiveness of procurement transparency and its impact on sustainable development.

Furthermore, institutional theory will be employed to examine how formal and informal rules, norms, and structures within government organizations shape transparency and accountability. The thesis also incorporates insights from the economic theory of information, emphasizing the role of information asymmetry and the potential for increased transparency to mitigate this imbalance. By integrating these theoretical perspectives, this study aims to shed light on the intricate relationship between public procurement and transparency, offering a holistic framework to analyze the determinants, consequences, and policy implications of enhanced transparency in the public procurement process.

METHODS

This study utilized a descriptive-correlational research design to investigate the relationship between transparency in public procurement and sustainable development within the Caraga Region, Philippines. It aims to examine how transparency mechanisms influence economic, environmental, and social dimensions of sustainability, particularly within government agencies

managing key sectors like agriculture, mining, education, healthcare, and public infrastructure. A probability sampling design was employed, specifically using stratified random sampling, to ensure the inclusion of diverse stakeholders such as manufacturers, distributors, contractors, and consultants registered under the Philippine Government Electronic Procurement System (PhilGEPS). The primary data collection tool is a structured questionnaire, designed to capture detailed insights on various transparency factors—such as openness, fairness, and accountability—and their perceived contributions to sustainable development outcomes. Pre-testing of the questionnaire ensures its reliability and contextual relevance, after which it was administered to participants, with strict adherence to data privacy laws, including Republic Act No. 10173 (Data Privacy Act). Data gathering involved coordination with PhilGEPS for the identification of registered suppliers and distribution of questionnaires, either online or through printed copies, ensuring a broad response rate. Scoring was based on a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), which will allow for the quantification of perceptions regarding transparency and its impact on sustainability initiatives. The data then subjected to rigorous statistical analysis, including the use of weighted means to evaluate average perceptions, Pearson Product-Moment Correlation to examine the strength and direction of the relationship between transparency and sustainable development, and regression analysis to determine the degree to which transparency influences sustainability outcomes. This comprehensive methodology enabled the study to derive key insights into the transparency-sustainability nexus, offering policy recommendations for enhancing procurement mechanisms to bolster sustainable development efforts, not only within Caraga but potentially across other regions of the Philippines, contributing to improved governance and public service delivery.

RESULTS AND DISCUSSION

Table 1 provides a summary of the level of transparency in public procurement processes as perceived by registered suppliers in the Caraga region. The overall average score across the indicators is 4.43, which falls within the "Agree" range, suggesting that suppliers generally view the public procurement processes as transparent and efficient.

The highest mean is 4.47 for "Access to Information," indicating that suppliers feel that accessing procurement opportunities in the Caraga region is relatively easy. This highlights a positive aspect of transparency, as suppliers can find the necessary information to participate in procurement processes. Meanwhile, the lowest mean score is 4.40 for "Conflict of Interest Management," which, while still indicating agreement, suggests that there may be room for improvement in ensuring that conflicts of interest are managed more effectively. This is a critical aspect, as unmanaged conflicts of interest can undermine trust in procurement processes and reduce supplier participation.

Table 1: Level of transparency in public procurement processes as perceived by the registered suppliers

Indicators	Mean	Description
1. Access to Information: I have easy access to information about public procurement opportunities in the Caraga region.	4.47	Agree
2. Clarity and Completeness of Information: The information provided in public procurement notices is clear and complete.	4.46	Agree
3. Fairness and Impartiality: The public procurement processes are conducted fairly and impartially.	4.43	Agree
4. Communication and Feedback: There is effective communication and feedback from procurement officials during the procurement process.	4.43	Agree

5. Timeliness of Information: Information regarding public procurement is provided in a timely manner.	4.41	Agree
6. Procedural Transparency: The procedures for public procurement are transparent and well-documented.	4.41	Agree
7. Compliance with Regulations: Public procurement activities comply with existing regulations and guidelines.	4.44	Agree
8. Conflict of Interest Management: Potential conflicts of interest are effectively managed in public procurement processes.	4.40	Agree
9. Supplier Participation and Inclusiveness: The public procurement processes encourage participation from a diverse range of suppliers.	4.45	Agree
10. Disclosure of Contract Awards: Information on contract awards is disclosed and accessible to the public.	4.44	Agree
Average	4.43	Agree

Mean: 1.00-1.49-Strongly disagree, 1.50-2.49-Disagree, 2.50-3.49-Neutral, 3.50-4.49-Agree, 4.50-5.00-Strongly Agree

Public procurement bodies in the Caraga region have made procurement opportunities visible and accessible, fostering supplier confidence and encouraging competitive bidding, which supports transparent governance. However, the lower score in "Conflict of Interest Management" suggests a need for policy improvement, as inadequate management could lead to perceptions of unfairness and discourage supplier participation. While transparency in procurement, a key pillar of good governance (Andhov et al., 2020), is generally upheld, enhancing conflict of interest management through stricter regulations and better monitoring could further promote competition and supplier trust ensuring fair and ethical procurement practices.

Table 2 presents the perceptions of businesses in the Caraga Region on the level of sustainable development practices, specifically in terms of the economic dimension, as influenced by public procurement. The overall average score is 4.39, which falls under "Agree," suggesting that businesses perceive public procurement as having a generally positive impact on their economic sustainability.

Table 2: Level of sustainable development practices in the Caraga Region, Philippines in terms of economic dimension

Economic Dimension	Mean	Description
1. Public procurement practices in the Caraga Region have significantly increased the demand for our products/services.	4.43	Agree
2. The procurement policies have improved our company's economic sustainability.	4.41	Agree
3. Public procurement processes have led to a fair competitive environment for suppliers.	4.41	Agree
4. The transparency in public procurement has positively affected our business operations.	4.40	Agree
5. Payment terms in public procurement contracts are favorable and support our cash flow needs.	4.36	Agree
6. Public procurement requirements for sustainability have increased our operational costs.	4.33	Agree
7. The public procurement system encourages innovation in our products/services.	4.40	Agree

8. Our participation in public procurement has led to an increase in employment within our company.	4.41	Agree
9. The economic benefits from public procurement contracts are equitably distributed among suppliers in the Caraga Region.	4.37	Agree
10. Public procurement initiatives have contributed to the long- term economic growth of our business.	4.35	Agree
Average	4.39	Agree

Mean: 1.00-1.49-Strongly disagree, 1.50-2.49-Disagree, 2.50-3.49-Neutral, 3.50-4.49-Agree, 4.50-5.00-Strongly Agree

The highest mean score of 4.43 is for the statement "Public procurement practices in the Caraga Region have significantly increased the demand for our products/services." This indicates that public procurement plays a key role in boosting local businesses by generating more demand for their offerings. This aligns with the goals of sustainable development in stimulating local economies and promoting inclusive economic growth.

On the other hand, the lowest mean score of 4.33 relates to "Public procurement requirements for sustainability have increased our operational costs." While businesses generally agree with this statement, it suggests that there are cost implications in meeting the sustainability requirements imposed by public procurement. This can be a challenge for smaller companies that may struggle to absorb higher costs, even though these practices promote long-term sustainability goals.

The results suggest that public procurement in the Caraga Region is driving positive economic outcomes for businesses by increasing demand and encouraging competition, leading to job creation and long-term growth, as reflected in high scores for increased employment (4.41) and business growth (4.35). However, sustainability requirements may pose short-term financial burdens for companies due to higher operational costs. While the current procurement system is beneficial, smaller enterprises might require additional support, such as financial assistance or technical aid, to meet sustainability standards without harming their profitability. Studies highlight the role of public procurement in promoting local economic growth and sustainable practices (Ondrasek et al., 2023), as well as the importance of transparency and competition in fostering innovation. However, sustainability requirements can disproportionately affect smaller firms (Rauf et al., 2023), underscoring the need for balanced policies that support businesses in managing these costs while promoting long-term innovation and growth.

Table 3 outlines the level of sustainable development practices in the Caraga Region concerning the environmental dimension. The overall average score of 4.30 suggests that registered suppliers generally perceive the public procurement practices in the Caraga Region to be environmentally sustainable, falling under the "Agree" range. This implies that environmental considerations are being integrated into the region's public procurement processes.

Table 3: Level of sustainable development practices in the Caraga Region, Philippines in terms of environmental dimension

Environmental Dimension	Mean	Description
1. Public procurement practices in the Caraga Region prioritize environmentally sustainable products.	4.33	Agree
2. The procurement policies in the Caraga Region include specific requirements for reducing environmental impact.	4.27	Agree
3. Suppliers are encouraged to adopt eco-friendly practices through public procurement guidelines.	4.29	Agree
4. The selection criteria for public contracts in the Caraga Region consider the environmental performance of suppliers.	4.25	Agree

5. Public procurement practices in the Caraga Region help to reduce waste and promote recycling.	4.38	Agree
6. There are clear incentives for suppliers to provide environmentally friendly products in public procurement processes.	4.22	Agree
7. The public procurement process in the Caraga Region promotes the use of renewable energy and sustainable materials.	4.32	Agree
8. Environmental sustainability is a key factor in awarding public contracts in the Caraga Region.	4.31	Agree
9. The public procurement practices in the Caraga Region support suppliers who demonstrate strong environmental responsibility.	4.32	Agree
10. The public procurement system in the Caraga Region effectively balances cost efficiency with environmental sustainability.	4.29	Agree
Average	4.30	Agree

Mean: 1.00-1.49-Strongly disagree, 1.50-2.49-Disagree, 2.50-3.49-Neutral, 3.50-4.49-Agree, 4.50-5.00-Strongly Agree

The highest mean score of 4.38 is for the statement "Public procurement practices in the Caraga Region help to reduce waste and promote recycling." This suggests that waste reduction and recycling efforts are seen as particularly effective in the procurement processes. The lowest mean score of 4.22 is for the statement "There are clear incentives for suppliers to provide environmentally friendly products in public procurement processes," which, while still positive, indicates that suppliers may perceive room for improvement in terms of incentives provided to encourage the supply of environmentally sustainable products.

The findings suggest that while public procurement in the Caraga Region is largely seen as environmentally responsible, there may be gaps in incentivizing suppliers to offer more eco-friendly products. High scores for promoting waste reduction (mean=4.38) and prioritizing sustainable products (mean=4.33) indicate that current policies effectively support sustainability, contributing to environmental goals like reducing the carbon footprint and promoting a circular economy. However, the lower score for supplier incentives (mean=4.22) suggests that stronger incentives, such as financial rewards or sustainability-based contract awards, may be needed to further motivate businesses. The region’s procurement process balances cost efficiency with sustainability (mean=4.29), demonstrating a strategic integration of environmental goals without compromising economic viability. Research underscores the role of green public procurement (GPP) in reducing environmental impact (Rainville, 2017) and highlights the importance of supplier incentives to foster sustainability (Wu, 2017). Additionally, balancing cost-effectiveness with sustainability is key to successful GPP adoption (Victor Ibukun Adebayo et al., 2024), which Caraga's procurement system can further enhance by improving incentives for eco-friendly practices.

Table 4 presents the level of sustainable development practices in the Caraga Region, Philippines, concerning the social dimension. With an overall average mean score of 4.42, respondents generally "Agree" that public procurement practices in the region have a positive social impact. This score highlights a general satisfaction with how procurement processes consider social factors such as fair labor conditions, community development, and job creation.

Table 4: Level of sustainable development practices in the Caraga Region, Philippines in terms of social dimension

Social Dimension	Mean	Description
1. Public procurement practices promote fair labor conditions for all workers	4.54	Strongly Agree

2. There is a significant effort to ensure diversity and inclusion in the awarding of public contracts.	4.43	Agree
3. Public procurement policies actively support local community development.	4.44	Agree
4. The procurement process is transparent and free from corruption, fostering social trust.	4.39	Agree
5. Public procurement decisions take into consideration the social well-being of communities.	4.40	Agree
6. Suppliers are encouraged to engage in socially responsible practices through public procurement requirements.	4.43	Agree
7. Public procurement practices contribute to the creation of job opportunities in the region.	4.42	Agree
8. There are measures in place to ensure the health and safety of workers involved in public projects.	4.40	Agree
9. Public procurement practices enhance the quality of life for the local population.	4.39	Agree
10. Social impact assessments are conducted to evaluate the effects of public procurement projects on communities.	4.37	Agree
Average	4.42	Agree

Mean: 1.00-1.49-Strongly disagree, 1.50-2.49-Disagree, 2.50-3.49-Neutral, 3.50-4.49-Agree, 4.50-5.00-Strongly Agree

The highest mean score of 4.54 is associated with the statement "Public procurement practices promote fair labor conditions for all workers." This falls under "Strongly Agree," suggesting a robust commitment to ensuring fair labor conditions in public procurement processes. Fair labor practices are crucial in public procurement, as they ensure that suppliers meet social standards, such as fair wages, non-discriminatory practices, and appropriate working conditions. This finding aligns with global trends emphasizing the social responsibility of public institutions to foster equitable labor conditions.

On the other hand, the lowest mean score of 4.37 pertains to the statement "Social impact assessments are conducted to evaluate the effects of public procurement projects on communities." While the response still falls under "Agree," it indicates that there is room for improvement in conducting comprehensive social impact assessments. Such assessments are essential in understanding the broader implications of procurement decisions on communities, including aspects like displacement, equitable resource distribution, and long-term community benefits.

The results suggest that public procurement in the Caraga Region contributes positively to social well-being, especially by promoting fair labor conditions and job creation. The high score for fair labor practices (4.54) reflects strong performance in ensuring fair treatment of workers, which supports social equity and worker satisfaction. However, the lower score on conducting social impact assessments (4.37) highlights the need for better evaluation of the social outcomes of procurement projects to ensure they meet broader social goals, such as improving local quality of life. Enhancing transparency (4.39) and reinforcing health and safety standards (4.40) could also boost public trust. Socially responsible procurement has been recognized as key to fostering ethical labor practices and community development (Huq & Stevenson, 2020). Additionally, conducting social impact assessments ensures procurement decisions are not only efficient but also socially beneficial (Hutchins & Sutherland, 2008). Overall, while public procurement in the Caraga Region supports social development, further focus on social impact assessments would enhance its role in benefiting the broader community.

Table 5 illustrates the significant relationships between the level of transparency in public procurement processes and the extent of sustainable development initiatives across economic, environmental, and social dimensions, using Pearson's r correlation at a 0.05 significance level.

Table 5: Significant relationship between the level of transparency in public procurement processes and the extent of sustainable development initiatives

Sustainable development initiatives	Transparency in public procurement processes		
	Pearson's r	p-value	Remark
Economic dimension	0.903	0.000	Significant
Environmental dimension	0.813	0.000	Significant
Social dimension	0.870	0.000	Significant

tested at $\alpha = 0.05$ level of significance using Pearson's r correlation.

The results demonstrate strong positive correlations between transparency in public procurement and sustainable development across economic, environmental, and social dimensions, with Pearson's r values of 0.903, 0.813, and 0.870, respectively. This indicates that as transparency increases, so does the positive impact on sustainable development initiatives. The strongest correlation in the economic dimension ($r = 0.903$) suggests that transparent procurement fosters fair competition, boosts demand and supports economic growth. The social dimension, with an r value of 0.870, highlights the importance of transparency in promoting fair labor practices, inclusivity, and community development, while the environmental dimension, though slightly lower ($r = 0.813$), still shows transparency's role in fostering accountability and environmental responsibility. The statistically significant p-values (0.000) confirm the reliability of these relationships. For policymakers in the Caraga Region, this underscores the importance of open, transparent procurement processes to enhance economic benefits, build social trust, and encourage sustainable practices. Research supports this, as Montero et al., (2015) emphasize transparency's role in reducing corruption, enhancing stakeholder engagement, and aligning procurement with sustainability goals. Similarly, Saner et al., (2020) highlight the importance of transparency in ensuring accountability and empowering communities to achieve social equity and environmental protection. Therefore, increasing transparency in public procurement is key to advancing sustainability in the Caraga Region.

Table 6 presents the results of a regression analysis examining the influence of transparency in public procurement processes on the effectiveness of sustainable development initiatives, specifically in terms of the economic dimension. The results show that transparency in procurement processes has a statistically significant impact on economic sustainability, as reflected by a β coefficient of 0.895 ($p = 0.000$). This strong positive coefficient suggests that an increase in transparency is associated with a substantial improvement in the economic outcomes of sustainable development initiatives.

Table 6: Regression analysis of transparency in public procurement processes and the effectiveness of sustainable development initiatives in terms of economic dimension

Variable	β Coefficients	Standard Error	t –Statistic	P-value	Remark
Intercept	0.417	0.100	4.151	0.000	Significant
Transparency in public procurement processes	0.895	0.022	40.063	0.000	Significant

Note: $R^2 = 0.816$ (Df = 1, F = 1605.054, $p < 0.000$), dependent variable= economic dimension

The intercept has a β coefficient of 0.417, indicating that when transparency is at its lowest, there is still some baseline level of economic sustainability. However, the significant t-statistic for the intercept ($t = 4.151$, $p = 0.000$) implies that even this baseline level is meaningful in the model. The

high R^2 value of 0.816 indicates that approximately 81.6% of the variance in economic sustainability is explained by the level of transparency in public procurement processes. This suggests a very strong predictive power of the model, meaning that transparency is a key driver of economic sustainability within the public procurement system.

The findings indicate that improving transparency in public procurement processes can significantly boost the economic dimension of sustainable development in the Caraga Region. A strong relationship ($\beta = 0.895$) between transparency and economic sustainability suggests that transparent procedures enhance fair competition, improve supplier opportunities, and increase demand for products and services. Transparent procurement practices give suppliers clear, timely information, reduce barriers to participation, and foster a competitive market, which supports long-term economic growth. Greater transparency can also attract more businesses to participate in public procurement, drive economic development, and reduce corruption and inefficiencies, leading to better public fund allocation. Literature supports these insights, with (Anderson et al., 2011) emphasizing the role of transparent procurement in fostering fair competition, innovation, and economic growth. (Brusca et al., 2018) further underscore transparency's role in curbing corruption, promoting resource efficiency, and building trust in public institutions. The regression analysis, with a β coefficient of 0.895 and R^2 value of 0.816, reinforces transparency as a critical driver of economic sustainability. Policymakers should prioritize transparency to improve economic outcomes and support long-term economic growth and sustainability.

Table 7 presents the results of a regression analysis assessing the impact of transparency in public procurement processes on the effectiveness of sustainable development initiatives in the environmental dimension. The results reveal that transparency in public procurement has a significant and positive effect on environmental sustainability, as indicated by the β coefficient of 1.000 ($p = 0.000$). This value suggests that a one-unit increase in transparency is associated with an equivalent increase in the effectiveness of environmental sustainability practices in public procurement.

Table 7: Regression analysis of transparency in public procurement processes and the effectiveness of sustainable development initiatives in terms of environmental dimension

Variable	β Coefficients	Standard Error	t –Statistic	p-value	Remark
Intercept	-0.138	0.169	-0.816	0.415	Not Significant
Transparency in public procurement processes	1.000	0.038	26.625	0.000	Significant

Note: $R^2 = 0.661$ (Df = 1, F = 708.901, $p < 0.000$), dependent variable= environmental dimension

The intercept has a β coefficient of -0.138, which is not statistically significant ($p = 0.415$). This suggests that when transparency is absent or at its lowest, there is no significant environmental sustainability effect. In other words, transparency is a necessary factor for achieving positive environmental outcomes in public procurement.

The R^2 value of 0.661 indicates that approximately 66.1% of the variation in environmental sustainability can be explained by the level of transparency in public procurement. Although this is a strong association, it is slightly lower than the economic dimension (as indicated in Table 4.1), implying that while transparency is crucial, other factors may also influence environmental outcomes.

The findings indicate that transparency in public procurement is essential for promoting environmental sustainability, with a strong relationship (β coefficient of 1.000) between transparent processes and positive environmental outcomes such as reduced impact, use of sustainable

materials, and adherence to eco-friendly practices. For policymakers in the Caraga Region, strengthening transparency is key to ensuring suppliers meet environmental standards and adopt green technologies, contributing to broader sustainability goals. Without transparency, achieving environmental sustainability becomes significantly more difficult, highlighting its importance as a foundational aspect of procurement policies.

Research supports this, with (Wong et al., 2021) noting that transparency facilitates the integration of environmental criteria, while (Muslim & Mais, 2023) emphasize its role in reducing corruption and fostering accountability. Transparent procurement processes encourage suppliers to prioritize sustainability, leading to improved environmental outcomes. The regression analysis further confirms the positive impact of transparency on environmental sustainability, making it a crucial focus for policymakers aiming to enhance the effectiveness of public procurement in promoting sustainable development.

Table 8 presents the regression analysis between transparency in public procurement processes and the effectiveness of sustainable development initiatives in the social dimension. The results demonstrate that transparency significantly contributes to social sustainability, as indicated by the β coefficient of 0.837 ($p = 0.000$). This suggests that greater transparency in procurement processes leads to improvements in social outcomes, such as fair labor conditions, community development, and job creation.

Table 8: Regression analysis of transparency in public procurement processes and the effectiveness of sustainable development initiatives in terms of social dimension

Variable	β Coefficients	Standard Error	t –Statistic	p-value	Remark
Intercept	0.709	0.112	6.335	0.000	Significant
Transparency in public procurement processes	0.837	0.025	33.568	0.000	Significant

Note: $R^2 = 0.756$ (Df = 1, F = 1126.821, $p < 0.000$), dependent variable= social dimension

The intercept has a β coefficient of 0.709, which is also statistically significant ($p = 0.000$). This indicates that even in the absence of transparency, there is some baseline level of positive social outcomes, likely due to existing social policies and practices within procurement systems. The R^2 value of 0.756 reveals that 75.6% of the variance in social sustainability is explained by transparency in public procurement. This relatively high R^2 suggests that transparency is a major driver of social sustainability outcomes, although other factors may also play a role.

The findings indicate that transparency in public procurement significantly enhances social sustainability, evidenced by a β coefficient of 0.837. Increasing transparency promotes socially responsible practices, such as fair labor conditions and inclusiveness, ensuring that procurement decisions consider social equity and community well-being. For policymakers, this underscores the importance of embedding transparency in procurement policies to achieve social development goals. Transparent processes lead to fair public contract awards and encourage suppliers to adopt socially responsible practices, promoting worker safety and community engagement. Additionally, the significant interception ($\beta = 0.709$) suggests that while transparency is crucial, other existing social frameworks also contribute to social sustainability.

Research supports the critical role of transparency in fostering social outcomes. (Gardner et al., 2019) highlights that transparency builds trust between the government, suppliers, and the public, leading to improved labor conditions and community engagement. (Doan-Soares, 2022) further note that transparent procurement promotes inclusivity by offering equal opportunities to suppliers from diverse backgrounds. The regression analysis reinforces these findings, with a β coefficient of 0.837 and an R^2 value of 0.756, confirming that transparency is key to enhancing the effectiveness of

sustainable development initiatives in the social dimension. Policymakers should prioritize transparency to improve social outcomes, including fair labor practices, community development, and inclusiveness.

Table 9 presents a regression analysis examining the relationship between various dimensions of transparency in public procurement processes and their effectiveness in achieving sustainable development initiatives, specifically in the economic dimension. The analysis reveals significant insights into how transparency factors influence economic outcomes. The intercept coefficient of 0.458 is statistically significant ($p = 0.000$), indicating that even without specific transparency factors, there exists a baseline level of economic effectiveness attributed to sustainable procurement practices.

Table 9: Regression analysis of transparency in public procurement processes and the effectiveness of sustainable development initiatives in terms of economic dimension

Variable	β Coefficients	Standard Error	t –Statistic	p- value	Remark
Intercept	0.458	0.098	4.655	0.000	Significant
1. Access to Information	0.058	0.043	1.353	0.177	Not Significant
2. Clarity and Completeness of Information	-0.068	0.048	-1.412	0.159	Not Significant
3. Fairness and Impartiality	0.091	0.04	2.294	0.022	Significant
4. Communication and Feedback	0.098	0.043	2.291	0.023	Significant
5. Timeliness of Information	0.045	0.044	1.030	0.304	Not Significant
6. Procedural Transparency	0.019	0.044	0.428	0.669	Not Significant
7. Compliance with Regulations	0.118	0.038	3.132	0.002	Significant
8. Conflict of Interest Management	0.178	0.044	4.023	0.000	Significant
9. Supplier Participation and Inclusiveness	0.202	0.059	3.449	0.000	Significant
10. Disclosure of Contract Awards	0.146	0.059	2.481	0.014	Significant

Note: $R^2 = 0.832$ (Df = 10, F = 174.787, $p < 0.000$), dependent variable= economic dimension

Among the variables analyzed, several factors show significant relationships with the economic dimension of sustainable development. Firstly, Fairness and Impartiality ($\beta = 0.091$, $p = 0.022$) suggest that a fair and impartial procurement process enhances economic outcomes, fostering a competitive environment where all suppliers have equal opportunities. Secondly, Communication and Feedback ($\beta = 0.098$, $p = 0.023$) indicates that effective communication and feedback from procurement officials positively impact economic sustainability, demonstrating that suppliers value transparency and responsiveness during the procurement process.

Moreover, Compliance with Regulations ($\beta = 0.118$, $p = 0.002$) highlights that adherence to regulations not only ensures ethical procurement practices but also contributes to economic benefits for suppliers. Additionally, Conflict of Interest Management ($\beta = 0.178$, $p = 0.000$) is crucial for maintaining trust in the procurement process, directly correlating with positive economic outcomes. Furthermore, Supplier Participation and Inclusiveness ($\beta = 0.202$, $p = 0.000$) shows the strongest

relationship among those tested, indicating that encouraging diverse supplier participation is critical for enhancing economic sustainability in public procurement. Lastly, Disclosure of Contract Awards ($\beta = 0.146$, $p = 0.014$) suggests that transparency in disclosing contract awards contributes to economic effectiveness by building trust and credibility in procurement processes.

On the other hand, the other variables, such as access to information, clarity and completeness of information, timeliness of information, procedural transparency, and conflict of interest management, did not show significant relationships. This suggests that while they are important, their direct impact on the economic dimension may be less pronounced compared to the aforementioned factors. The R^2 value of 0.832 indicates that 83.2% of the variance in the economic dimension of sustainable development is explained by the included transparency factors, suggesting a strong relationship between the transparency of procurement processes and their effectiveness in achieving economic sustainability.

The findings highlight the vital role of specific transparency dimensions—such as fairness, effective communication, compliance, conflict-of-interest management, and inclusiveness—in enhancing the effectiveness of sustainable development initiatives within the economic realm. Policymakers and procurement officials should prioritize these practices to foster a competitive and sustainable economic environment that benefits both suppliers and the broader community. For instance, encouraging diverse supplier participation can invigorate local economies by offering opportunities for smaller businesses in public contracts.

Additionally, the importance of conflict-of-interest management emphasizes the need for ethical procurement practices that maintain integrity and support sustainable economic growth. Research by Kudirat Bukola Adeusi et al., (2024) indicates that transparency fosters fairness and enhances supplier confidence, leading to increased participation and a competitive market. (Changalima & Mdee, 2023) stress the significance of clear communication between procurement officials and suppliers for better adherence to guidelines. (Cuadrado-Ballesteros et al., 2023) argue that transparent conflict management builds trust in public institutions and enhances procurement effectiveness. Overall, these studies underscore that transparency is a fundamental principle supporting fair competition and economic growth, with key factors emerging from regression analysis indicating their critical role in promoting economic sustainability in public procurement.

Table 10 presents the regression analysis of transparency in public procurement processes and their effectiveness in promoting sustainable development initiatives in terms of the environmental dimension. Unlike the economic dimension, the analysis shows fewer variables with significant effects, indicating that environmental sustainability in public procurement might be influenced by a different set of factors.

Table 10: Regression analysis of transparency in public procurement processes and the effectiveness of sustainable development initiatives in terms of environmental dimension

Variable	β Coefficients	Standard Error	t –Statistic	p- value	Remark
Intercept	-0.101	0.171	-0.589	0.556	Not Significant
1. Access to Information	0.058	0.074	0.777	0.438	Not Significant
2. Clarity and Completeness of Information	0.098	0.084	1.170	0.243	Not Significant
3. Fairness and Impartiality	-0.029	0.069	-0.425	0.671	Not Significant

4. Communication and Feedback	0.198	0.075	2.643	0.009	Significant
5. Timeliness of Information	0.167	0.076	2.191	0.029	Significant
6. Procedural Transparency	0.050	0.076	0.659	0.511	Not Significant
7. Compliance with Regulations	0.074	0.066	1.125	0.261	Not Significant
8. Conflict of Interest Management	0.142	0.077	1.843	0.066	Not Significant
9. Supplier Participation and Inclusiveness	0.213	0.102	2.084	0.038	Significant
10. Disclosure of Contract Awards	0.022	0.103	0.217	0.829	Not Significant

Note: $R^2 = 0.668$ (Df = 10, F = 71.2, p < 0.000), dependent variable= environmental dimension

The regression analysis reveals that the model's intercept is not significant ($\beta = -0.101$, $p = 0.556$), indicating no inherent level of environmental sustainability in public procurement independent of transparency factors. However, key variables significantly impact environmental outcomes, notably Communication and Feedback ($\beta = 0.198$, $p = 0.009$), which emphasizes the importance of effective communication between procurement officials and suppliers. Additionally, Timeliness of Information ($\beta = 0.167$, $p = 0.029$) is crucial, as timely access to procurement information supports environmentally sustainable decisions. Supplier Participation and Inclusiveness ($\beta = 0.213$, $p = 0.038$) also significantly relate to environmental sustainability, suggesting that engaging diverse suppliers can lead to innovative, eco-friendly solutions. Other transparency factors, while important for general procurement integrity, do not significantly influence environmental outcomes.

With an R^2 value of 0.668, approximately 66.8% of the variation in environmental sustainability can be attributed to the examined transparency factors. This highlights the importance of focusing on communication, timeliness, and inclusiveness to enhance environmental sustainability in procurement processes. Policymakers should prioritize effective communication and timely information provision to align procurement goals with sustainability. Encouraging a broader supplier base will foster eco-friendly products and services. Recent studies support these findings, indicating that collaboration and open communication are critical for achieving sustainable procurement objectives (Ogunsanya et al., 2023). As such, procurement policies should emphasize these targeted measures to maximize environmental impact.

Table 11 illustrates the regression analysis between transparency in public procurement processes and the effectiveness of sustainable development initiatives in terms of the social dimension. The analysis highlights several significant factors that contribute to social sustainability within public procurement processes. The model demonstrates an R^2 value of 0.764, suggesting that 76.4% of the variance in the social dimension can be explained by the factors related to transparency in procurement processes. This indicates a strong relationship between transparency and social sustainability outcomes.

Table 11: Regression analysis of transparency in public procurement processes and the effectiveness of sustainable development initiatives in terms of social dimension

Variable	β Coefficients	Standard Error	t –Statistic	p-value	Remark
Intercept	0.717	0.113	6.338	0.000	Significant

1. Access to Information	-0.030	0.049	-0.619	0.536	Not Significant
2. Clarity and Completeness of Information	0.046	0.055	0.823	0.411	Not Significant
3. Fairness and Impartiality	0.116	0.045	2.542	0.011	Significant
4. Communication and Feedback	0.067	0.049	1.352	0.177	Not Significant
5. Timeliness of Information	0.115	0.050	2.294	0.022	Significant
6. Procedural Transparency	0.118	0.050	2.356	0.019	Significant
7. Compliance with Regulations	0.123	0.043	2.837	0.005	Significant
8. Conflict of Interest Management	0.055	0.051	1.085	0.278	Not Significant
9. Supplier Participation and Inclusiveness	0.005	0.067	0.079	0.937	Not Significant
10. Disclosure of Contract Awards	0.222	0.068	3.263	0.001	Significant

Note: $R^2 = 0.764$ (Df = 10, F = 114.315, $p < 0.000$), dependent variable= social dimension

The intercept ($\beta = 0.717$, $p = 0.000$) indicates a significant baseline level of social sustainability in public procurement within the Caraga Region, even in the absence of specific transparency factors. Among the transparency-related factors, Fairness and Impartiality ($\beta = 0.116$, $p = 0.011$) significantly influences social outcomes by ensuring equal opportunities for all suppliers, which fosters inclusive practices that can lead to equitable job creation and improved labor conditions. Timeliness of Information ($\beta = 0.115$, $p = 0.022$) is also critical, as timely access to procurement information allows suppliers to engage in socially responsible activities, enhancing community development. Additionally, Procedural Transparency ($\beta = 0.118$, $p = 0.019$) builds trust between procurement officials and suppliers, while Compliance with Regulations ($\beta = 0.123$, $p = 0.005$) ensures adherence to social standards. Notably, Disclosure of Contract Awards ($\beta = 0.222$, $p = 0.001$) exhibits the strongest relationship with social sustainability, promoting accountability and ensuring contracts are awarded based on merit.

While several factors such as Access to Information ($\beta = -0.030$, $p = 0.536$) and Supplier Participation and Inclusiveness ($\beta = 0.005$, $p = 0.937$) did not show significant effects on social sustainability, the findings highlight the importance of transparency in public procurement for promoting positive social outcomes. Policymakers should prioritize fairness, timeliness, procedural transparency, compliance with regulations, and disclosure of contract awards to enhance the social impact of procurement practices. Recent literature underscores this importance, with (Manginte, 2024) noting that transparency mitigates corruption and fosters inclusive decision-making, while Nair et al. (2023) link timely disclosure of information to improved public accountability. Overall, the analysis demonstrates that targeted transparency measures are essential for achieving social sustainability in public procurement.

CONCLUSIONS

The study confirms that perceived high transparency levels in Philippine public procurement processes play a pivotal role in aligning the interests of government officials and suppliers. This

transparency bridges the principal-agent gap, fostering trust and collaboration that is essential for enhancing procurement efficiency in the Philippines. Positive supplier perceptions indicate that current policies and practices within the Philippine procurement system have been effective in promoting accessibility, fairness, and accountability. Furthermore, suppliers' commitment to sustainable development practices reflects their alignment with societal goals, underscoring the role of procurement in supporting sustainable community development. This finding, demonstrating a strong relationship between transparency and sustainable development initiatives, highlights transparency as a central driver for fostering sustainability within the unique Philippine socio-economic landscape.

Additionally, this study emphasizes the importance of supplier participation and effective communication as proposed by institutional theory. In the Philippine context, continuous improvements in these areas can create a more inclusive procurement environment that promotes equity and compliance, while also offering insights applicable to global procurement systems. Transparent dialogues with suppliers facilitate the adoption of eco-friendly practices, aligning procurement processes with environmental objectives to advance sustainability efforts. Furthermore, procedural transparency and fairness are crucial for building public trust and fostering engagement, strengthening community relationships and the credibility of public institutions in the Philippines and beyond.

Insights from the economic theory of information further underscore the need to address information asymmetry in procurement processes. By enhancing transparency, stakeholders in the Philippines can reduce imbalances, improve supplier participation, and contribute to a more competitive and equitable procurement landscape. Ultimately, this study's findings validate the theoretical frameworks employed and provide practical recommendations for policymakers and procurement officials in the Philippines, as well as internationally. Prioritizing transparency and sustainable practices in public procurement can play a transformative role in advancing effective governance, fostering sustainable development, and serving as a model for other regions striving for similar objectives.

REFERENCES

- Adebayo, V. I., Paul, P. O., & Eyo-Udo, N. L. (2024). Sustainable procurement practices: Balancing compliance, ethics, and cost-effectiveness. *GSC Advanced Research and Reviews*, 20(1), 098-107. <https://doi.org/10.30574/gscarr.2024.20.1.0247>
- Adeusi, K. B., Jejenewa, T. O., & Jejenewa, T. O. (2024). Advancing financial transparency and ethical governance: innovative cost management and accountability in higher education and industry. *International Journal of Management & Entrepreneurship Research*, 6(5), 1533-1546. <https://doi.org/10.51594/ijmer.v6i5.1099>
- Anderson, R. D., Kovacic, W. E., & Müller, A. C. (2011). Ensuring integrity and competition in public procurement markets: a dual challenge for good governance. *The WTO Regime on Government procurement: Challenge and reform*, 681, 681. https://www.researchgate.net/profile/Robert-Anderson-12/publication/265222261_Ensuring_integrity_and_competition_in_public_procurement_markets_A_dual_challenge_for_good_governance/links/552671540cf2628d5afdf690/Ensuring-integrity-and-competition-in-public-procurement-markets-A-dual-challenge-for-good-governance.pdf
- Andhov, M., Caranta, R., Stoffel, T., Grandia, J., Janssen, W. A., Vornicu, R., ... & Wiesbrock, A. (2020). Sustainability through public procurement: the way forward-Reform Proposals. <file:///C:/Users/Alvic%20A.%20Arnado/Downloads/ssrn-3589168.pdf>

- van Berkel, J. R. J., & Schotanus, F. (Year). The impact of “procurement with impact”: Measuring the short-term effects of sustainable public procurement policy on the environmental friendliness of tenders. *Journal of Public Procurement*, Volume 21(Issue 3). <https://doi.org/10.1108/JOPP-10-2020-0070>
- Boquet, Y. (2017). Regional Development Policies in the Philippines. In: *The Philippine Archipelago*. Springer Geography. Springer, Cham. https://doi.org/10.1007/978-3-319-51926-5_18
- Brusca, I., Manes Rossi, F., & Aversano, N. (2017). Accountability and Transparency to Fight against Corruption: An International Comparative Analysis. *Journal of Comparative Policy Analysis: Research and Practice*, 20(5), 486–504. <https://doi.org/10.1080/13876988.2017.1393951>
- Changalima, I. A., & Mdee, A. E. (2022). Procurement skills and procurement performance in public organizations: The mediating role of procurement planning. *Cogent Business & Management*, 10(1). <https://doi.org/10.1080/23311975.2022.2163562>
- Cuadrado-Ballesteros, B., Ríos, A.-M. and Guillamón, M.-D. (2023), "Transparency in public administrations: a structured literature review", *Journal of Public Budgeting, Accounting & Financial Management*, Vol. 35 No. 5, pp. 537-567. <https://doi.org/10.1108/JPBAFM-10-2022-0158>
- Doan-Soares, S. D. (2022). “Like Turning a Ship in a Channel”: Reframing Complexities and Solutions for Supplier Diversity and Local Purchasing in Healthcare. Harvard University. <https://www.proquest.com/openview/abdf68d6dc7ceb307cf0e2c811b21fa/1?pq-origsite=gscholar&cbl=18750&diss=y>
- Grant, O. The Role of Supplier Diversity in Enhancing E-Commerce Operations. Preprints 2024, 2024071094. <https://doi.org/10.20944/preprints202407.1094.v1>
- Halachmi, A., & Greiling, D. (2013). Transparency, E-Government, and Accountability: Some Issues and Considerations. *Public Performance & Management Review*, 36(4), 562–584. <https://doi.org/10.2753/PMR1530-9576360404>
- Huq, F.A., Stevenson, M. Implementing Socially Sustainable Practices in Challenging Institutional Contexts: Building Theory from Seven Developing Country Supplier Cases. *J Bus Ethics* 161, 415–442 (2020). <https://doi.org/10.1007/s10551-018-3951-x>
- Kolstad, I., & Søreide, T. (2009). Corruption in natural resource management: Implications for policy makers. *Resources Policy*, 34(4), 214–226. <https://doi.org/10.1016/j.resourpol.2009.05.001>
- Kumar, S. (2022). Emergence of Sustainable Public Procurement as a Strategic Instrument. In: *Understanding Sustainable Public Procurement*. Public Administration, Governance and Globalization, vol 21. Springer, Cham. https://doi.org/10.1007/978-3-031-08258-0_2
- Lăzăroiu, G., Ionescu, L., Uță, C., Hurloiu, I., Andronie, M., & Dijmărescu, I. (2020). Environmentally responsible behavior and sustainability policy adoption in green public procurement. *Sustainability*, 12(5), 2110. <https://doi.org/10.3390/su12052110>
- Manginte, S. Y. (2024). Fortifying transparency: enhancing corporate governance through robust internal control mechanisms. *Advances in Management & Financial Reporting*, 2(2), 72-84. <https://doi.org/10.60079/amfr.v2i2.173>
- May, R. J. (2002). Governance and social safety nets in the Philippines. *Towards Asia's Sustainable Development: The Role of Social Protection*, 91.
- McCulloch, N., Maffioli, A., & Zuluaga, F. (2019). Transparency and efficiency in public procurement: Evidence from the Colombian experience. *Public Administration Review*, 79(2), 209-221. <https://doi.org/10.1111/puar.13064>

- Mitnick, Barry M., *The Theory of Agency: The Fiduciary Norm* (March 25, 1975). The content of this paper will be included in revised form in Barry M. Mitnick, *The Theory of Agency* (Cambridge University Press, Forthcoming)., Available at SSRN: <https://ssrn.com/abstract=3681014> or <http://dx.doi.org/10.2139/ssrn.3681014>
- Montero, A. G., & Le Blanc, D. (2019). The role of external audits in enhancing transparency and accountability for the Sustainable Development Goals. <https://www.un.org/sites/un2.un.org/files/2020/08/1597341825.2797.pdf>
- Muslim, M., & Mais, R. G. (2023). The Interplay between Transparency, Accountability, and Corruption: A Contemporary Discourse. *Advances: Jurnal Ekonomi & Bisnis*, 1(6), 332-343. <https://doi.org/10.60079/ajeb.v1i6.268>
- Nair, R., Arshad, R., Muda, R. et al. Web-disclosure practices for transparency and the sustainability of non-profit organisations. *Int Rev Public Nonprofit Mark* 20, 1–23 (2023). <https://doi.org/10.1007/s12208-021-00330-2>
- Ondrasek, G., Horvatinec, J., Kovačić, M. B., Reljić, M., Vinceković, M., Rathod, S., ... & Njavro, M. (2023). Land Resources in organic Agriculture: Trends and challenges in the twenty-first century from global to Croatian contexts. *Agronomy*, 13(6), 1544. <https://doi.org/10.3390/agronomy13061544>
- Philippine Government Electronic Procurement System. (n.d.). About PhilGEPS. Retrieved October 15, 2024, from <https://www.philgeps.gov.ph>
- Rainville, A. (2017). Standards in green public procurement—A framework to enhance innovation. *Journal of Cleaner Production*, 167, 1029-1037. <https://doi.org/10.1016/j.jclepro.2016.10.088>
- Rauf, F., Wanqiu, W., Naveed, K. et al. How ESG reporting is affected by sustainable finance and green innovation: moderating role of sales growth. *Environ Sci Pollut Res* 31, 7246–7263 (2024). <https://doi.org/10.1007/s11356-023-31479-4>
- Saner, R., Yiu, L., & Nguyen, M. (2020). Monitoring the SDGs: Digital and social technologies to ensure citizen participation, inclusiveness and transparency. *Development policy review*, 38(4), 483-500. <https://doi.org/10.1111/dpr.12433>
- Wong, C. W., Wong, C. Y., Boon-Itt, S., & Tang, A. K. (2021). Strategies for building environmental transparency and accountability. *Sustainability*, 13(16), 9116. <https://doi.org/10.3390/su13169116>