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EFFECTS OF ADVERSARIAL DISPUTE RESOLUTION TECHNIQUES ON PPP PROJECTS DELIVERY IN SOUTHWEST NIGERIA

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ABSTRACT

Public–Private Partnerships (PPPs) are central to Nigeria's infrastructure strategy, yet disputes among stakeholders routinely impede delivery. This quantitative study examines, first, the extent to which adversarial (arbitration, litigation) and, second, their effects on project delivery in Southwest Nigeria. A questionnaire was administered to 400 PPP stakeholders; 379 valid responses were analyzed (94.75% response rate), a level considered robust for survey research. Descriptive statistics and Relative Importance Index (RII) show adversarial techniques are "highly used," especially arbitration (RII ≈ 0.818), while litigation is reserved as a last resort (RII ≈ 0.786). ANOVA indicates no significant differences in the extent of usage of adversarial techniques by firm size ($p > 0.05$). Simple linear regression reveals that adversarial techniques have a statistically significant but small negative effect on PPP project delivery ($R^2 = 0.014$; $\beta = -0.117$; $p = 0.023$). The findings suggest that, although adversarial mechanisms are embedded for enforceability, greater reliance on them may modestly erode delivery performance, underscoring the need to strengthen early, problem-solving mechanisms and improve clause design and capacity for preventive resolution.

1. INTRODUCTION

Across global infrastructure markets—and prominently in Nigeria—PPPs are deployed to bridge financing and capability gaps while allocating risks between public and private actors (Currie & Teague, 2015; Gunduz et al., 2024). Given their long horizons, complex interfaces, and multi-party governance, PPPs are inherently dispute-prone. Disagreements frequently arise over scope changes, payment regimes, performance standards, and force-majeure events, necessitating credible dispute resolution pathways to protect value for money and ensure continuity (Cheung et al., 2002; Sai et al., 2025). Contractual practice typically combines a tiered sequence of non-adversarial steps (e.g., negotiation, mediation) with adjudicative backstops (arbitration, litigation) to balance speed, confidentiality, and enforceability (Panov et al., 2024; Currie & Teague, 2015). However, empirical evidence on how these techniques—once deployed—affect actual delivery outcomes remains mixed, and there is limited quantitative evidence from Southwest Nigeria.

This study addresses two gaps. First, it measures the extent to which adversarial and non-adversarial techniques are specified and relied upon in PPP projects in Southwest Nigeria. Second, it estimates the effect of these techniques on PPP project delivery. Anchored in the dispute-process literature that distinguishes interest-based, settlement-oriented mechanisms from rights-based adjudication (Cheung et al., 2002; Panov et al., 2024), we test whether heavier reliance on adversarial pathways correlates with diminished delivery performance—through delay, cost escalation, or strained relationships—relative to collaborative approaches (Currie & Teague, 2015; Gunduz et al., 2024). By providing region-specific, survey-based evidence, the study informs contracting practice, dispute system design, and capacity-building priorities for PPP actors in Southwest Nigeria.

2. METHODOLOGY

The study adopts a quantitative, cross-sectional survey design to capture perceptions and experiences of PPP stakeholders in **Southwest Nigeria**, a region hosting several high-value PPP projects. The design enables standardized measurement of the prevalence and perceived effects of dispute resolution techniques and supports inferential testing consistent with prior construction/PPP dispute studies (Cheung et al., 2002; Sai et al., 2025).

The target population comprised PPP stakeholders across the public sector (ministries, departments, and agencies), private concessionaires/SPVs, main contractors, subcontractors, and consultants operating in Southwest Nigeria. A structured questionnaire was administered to 400 potential respondents using purposive and stratified approaches to ensure representation across organization types and sizes. A total of 379 valid responses were returned (response rate 94.75%), exceeding common adequacy thresholds and thus limiting non-response bias (Baruch & Holtom, 2008; Fincham, 2008).

The instrument contained closed-ended items on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Sections captured: (i) respondent/firm demographics; (ii) extent of usage of specific dispute resolution techniques (adversarial: arbitration, litigation; non-adversarial: negotiation, mediation, conciliation, expert determination, mini-trial, DRB); and (iii) perceived PPP project delivery performance. Items were derived from extant ADR/PPP literature and aligned to local contracting practices (Cheung et al., 2002; Panov et al., 2024; Currie &

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Teague, 2015; Gunduz et al., 2024). The questionnaire underwent expert review and pilot testing for clarity and content validity before full deployment.

Data were screened and analyzed using descriptive statistics (means) and Relative Importance Index (RII) to rank technique usage. To assess group differences in usage by firm size, one-way ANOVA was applied for both non-adversarial and adversarial sets. To estimate effects on PPP delivery, simple linear regression models were run. Participation was voluntary; responses were anonymized and reported in aggregate. The study adhered to standard ethical norms for informed consent and confidentiality in organizational surveys.

3. RESULTS AND DISCUSSIONS

This chapter presents the results of the study, alongside a detailed discussion of their implications in the context of Public-Private Partnership (PPP) projects in the Southwest, Nigeria. The findings are derived from data collected through survey responses and are analysed to address the study's objectives. Key demographic characteristics of the respondents are first outlined to provide a contextual understanding of the study participants. This is followed by a detailed exploration of the factors contributing to disputes in PPP contracts, the extent of stakeholder compliance with various dispute resolution techniques, and the application of both adversarial and non-adversarial methods (Sai et al., 2025). The chapter also examines the criteria for selecting appropriate dispute resolution approaches and the implications of these findings within the broader framework of PPP project management. Throughout the discussion, comparisons are made with existing literature to situate the results within theoretical and empirical contexts, offering insights into their practical and academic relevance.

The response rate for this study, as presented in Table 4.1, is 94.75%, derived from 379 valid questionnaires retrieved out of 400 administered. This response rate is considered high and acceptable in survey-based research, surpassing the 50-60% benchmark commonly recommended for ensuring sufficient data reliability and representativeness (Baruch & Holtom, 2008). The high response rate demonstrates effective survey administration and participant engagement, which is critical for the validity of findings in research focused on Public-Private Partnership (PPP) projects. Additionally, a response rate of over 70% aligns with recommendations from Fincham (2008), who emphasized that higher response rates reduce the risk of non-response bias and improve the generalizability of results. This robust rate enhances the credibility of the study's outcomes and provides a strong foundation for subsequent analysis and discussion.

3.1 Extent of Usage of Adversarial Dispute Resolution Techniques in PPP Projects

Table 1 provides insight into the reliance on adversarial dispute resolution techniques within PPP contracts executed in Nigeria. The analysis is based on respondents' ratings of two key mechanisms, arbitration and litigation, widely regarded as formal and binding approaches to dispute resolution. These techniques are typically invoked when collaborative or non-binding methods fail to yield satisfactory outcomes.

Arbitration is revealed to be the most widely adopted adversarial technique (Farhat, 2025), with a mean score of 4.09 and a corresponding Relative Importance Index (RII) of 0.818. Ranked first, arbitration is firmly classified as “Highly Used.” A significant majority of respondents (over 81%) agreed or strongly agreed that their PPP contracts specify arbitration as the binding mechanism of last resort. This finding underscores the institutionalization of arbitration in PPP contracts as a preferred method of ensuring enforceable and definitive outcomes, particularly in complex infrastructure projects where neutrality, confidentiality, and finality are essential (Broklyn & Tioluwani, 2025).

The high RII score reflects the confidence of PPP stakeholders in arbitration’s capacity to deliver legally binding resolutions while avoiding the often lengthy and unpredictable outcomes associated with conventional litigation (Moseley, 2020). It also indicates an increasing alignment of Nigerian PPP practices with global best practices, where arbitration is typically embedded in multi-tiered dispute resolution frameworks.

Litigation, although considered more confrontational and cost-intensive, also scores highly with a mean of 3.93 and an RII of 0.786, ranking it second. This technique is also categorized as “Highly Used,” suggesting that while stakeholders prefer alternative methods such as negotiation, mediation, or arbitration, litigation remains an important mechanism, often specified in contracts as the ultimate legal safeguard (Panov et al., 2024). Notably, the data shows that over 71% of respondents either agreed or strongly agreed that litigation is reserved for use only after other mechanisms have been exhausted.

This reflects a cautious but strategic use of litigation in PPP dispute frameworks. Its function is often to provide an enforceable fallback mechanism in cases where prior dispute resolution steps, whether ADR or arbitration, fail or are perceived as compromised (Oyeyoade et al., 2025). It is also indicative of the broader legal culture in Nigeria, where litigation remains a known and well-understood recourse for enforcing rights, particularly in high-stakes disputes.

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The grand mean score of 4.01 and overall RII of 0.802 confirm that adversarial techniques are highly embedded in Nigerian PPP contracts. This suggests that while non-adversarial techniques such as negotiation and mediation are increasingly emphasised, stakeholders still place significant value on formal adjudicative procedures (Pablo, 2024). The high reliance on arbitration, in particular, suggests that Nigerian PPP stakeholders seek to strike a balance between the efficiency and flexibility of ADR, and the finality and enforceability offered by binding adversarial mechanisms (Egemonye, 2025).

However, the findings also highlight the potential need for further capacity building and contractual reform aimed at optimising the sequencing and effectiveness of these techniques. For instance, contracts should clearly define thresholds for escalation, timeframes for each tier, and criteria for neutral selection to avoid abuse of process or delays. Moreover, while litigation serves as a critical safety net, its usage should remain minimal to avoid undermining the collaborative spirit essential to successful PPP implementation (Egemonye, 2025)

Table 1: Extent of Usage of Adversarial Dispute Resolution Techniques in PPP Projects

Extent of Usage of Adversarial Dispute Resolution Techniques	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	RII	Rank	Remark
Arbitration is often used and specified as the binding, final tier in our PPP contracts.		0.5	18.2	53.0	28.2	4.09	0.818	1	Highly Used
Litigation is used and reserved as a last resort after other tiers have been exhausted.	0.3	3.2	25.1	45.9	25.6	3.93	0.786	2	Highly Used
			Grand Mean			4.01	0.802		Highly Used

Source: Field Survey, 2025

H01: There is no Significant Difference in the Extent of Usage of Adversarial Dispute Resolution Techniques

Table 2 provides the results of a one-way Analysis of Variance (ANOVA) examining whether the extent of usage of adversarial dispute resolution techniques differs significantly across firms of various sizes in the execution of PPP projects. The adversarial techniques considered typically include arbitration and litigation, which are more formal and binding approaches used when earlier non-binding methods have failed (Cheung et al., 2002).

The between-group variation is reflected in a Sum of Squares of 0.769 with 2 degrees of freedom, resulting in a Mean Square of 0.385. The within-group variation is much larger, with a Sum of Squares of 103.927 across 376 degrees of freedom, and a Mean Square of 0.276. The ANOVA test]\yielded an F-statistic of 1.392 and a corresponding p-value of 0.250.

This p-value, being significantly greater than the 0.05 threshold for statistical significance, indicates that the observed differences in the usage of adversarial dispute resolution techniques among firms of different sizes are not statistically significant. In other words, firm size does not appear to influence whether adversarial techniques such as arbitration and litigation are incorporated or relied upon in PPP dispute resolution frameworks.

In terms of practical significance, the computed effect sizes are very small. The Eta-squared (η^2) value is 0.007, suggesting that firm size explains only 0.7% of the variance in adversarial technique usage. This value is well below conventional thresholds for small effects, indicating negligible explanatory power. Similarly, the Epsilon-squared and Omega-squared values are 0.002 and 0.001, respectively. The confidence intervals for these estimates span from slightly negative to low positive values, further confirming the absence of meaningful differences in usage patterns across firm sizes.

The results suggest that adversarial techniques are widely and uniformly adopted across organisations, regardless of their size. This could be attributed to the standardisation of PPP contract templates, sector-wide legal compliance requirements, or the influence of funding institutions and legal advisors, who often recommend arbitration clauses and legal safeguards regardless of the implementing firm's size (Zhang & Li, 2020). The consistent presence of arbitration and litigation clauses may also reflect broader industry norms and the need for enforceability in high-value infrastructure projects.

Based on the ANOVA output ($F = 1.392$, $p = 0.250$) and effect size estimates ($\eta^2 = 0.007$), the null hypothesis cannot be rejected. There is no statistically significant difference in the usage of adversarial dispute resolution techniques

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across small, medium, and large firms engaged in PPP project execution. Therefore, H_{03} is accepted, affirming the uniformity in the contractual inclusion of adversarial dispute resolution mechanisms across firm sizes.

Table 2: ANOVA results on the extent of usage of Adversarial dispute resolution techniques across various firms' sizes

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.769	2	0.385	1.392	0.250
Within Groups	103.927	376	0.276		
Total	104.697	378			
ANOVA Effect Sizes		Point Estimate	95% Confidence Interval		
			Lower	Upper	
Adversarial Dispute Resolution Techniques	Eta-squared	0.007	0.000	0.030	
	Epsilon-squared	0.002	-0.005	0.025	
	Omega-squared Fixed-effect	0.002	-0.005	0.025	
	Omega-squared Random-effect	0.001	-0.003	0.013	

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

b. Negative but less biased estimates are retained, not rounded to zero.

Source: Field Survey, 2025

3.2 Effect of adversarial dispute resolution techniques om PPP projects delivery

Table 3 shows the model summary for the regression analysis. The correlation coefficient (R) is 0.117, indicating a weak but positive linear relationship between the use of adversarial dispute resolution techniques (such as arbitration and litigation) and the overall performance of PPP project delivery. The R Square value of 0.014 suggests that approximately 1.4% of the variance in project delivery outcomes is explained by adversarial techniques. Although modest, this value indicates a statistically measurable relationship. The Adjusted R Square of 0.011 slightly adjusts for the number of predictors and sample size, confirming that the model has a minor explanatory value. The standard error of the estimate is 0.55152, indicating the average deviation of observed values from the regression line.

Table 4 presents the results of the analysis of variance (ANOVA), which assesses the overall statistical significance of the regression model. The regression sum of squares is 1.596 with 1 degree of freedom, while the residual sum of squares is 114.673 across 377 degrees of freedom, yielding a total sum of squares of 116.269. The calculated F-statistic is 5.248, and the corresponding p-value is 0.023. Since this p-value is less than the conventional alpha level of 0.05, the model is statistically significant. This indicates that adversarial dispute resolution techniques significantly predict project delivery outcomes in PPPs, even though the explained variance is small.

Table 5 provides details on the regression coefficients. The intercept (constant) is 3.872, which represents the estimated baseline value of PPP project delivery when adversarial techniques are not used. The unstandardized coefficient (B) for adversarial dispute resolution techniques is -0.123, indicating a negative relationship: for every one-unit increase in the usage of adversarial techniques, PPP project delivery is expected to decrease by 0.123 units. This suggests that higher reliance on adversarial methods may correspond with slightly reduced project delivery performance (Hashem M. Mehany et al., 2018).

The standardised beta coefficient is -0.117, indicating a small negative effect size. The t-value for the predictor is -2.291, and the p-value is 0.023, which is statistically significant at the 5% level. This confirms that adversarial dispute resolution techniques contribute meaningfully, though modestly, to explaining variation in PPP project delivery, and that this contribution is significant and negative.

H02: Adversarial dispute resolution techniques have no significant effect on PPP project delivery.

Based on the results from the regression output: $R^2 = 0.014$; $F(1, 377) = 5.248$, $p = 0.023$; $\beta = -0.117$, $t = -2.291$, $p = 0.023$; the null hypothesis is rejected. There is a statistically significant negative effect of adversarial dispute resolution techniques on PPP project delivery. This suggests that increased reliance on formal, adversarial mechanisms

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such as litigation or arbitration may be associated with slightly lower delivery performance, possibly due to delays, costs, or strained stakeholder relationships often linked to adversarial processes (Mabel, 2025).

Table 3: Model Summary of the effect of adversarial dispute resolution techniques have no significant effect on PPP project delivery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.117[a]	0.014	0.011	0.55152

a. Predictors: (Constant), Adversarial Dispute Resolution Techniques

Source: Field Survey, 2025

Table 4: ANOVA results of the effect of adversarial dispute resolution techniques have no significant effect on PPP project delivery

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.596	1	1.596	5.248	.023[b]
	Residual	114.673	377	0.304		
	Total	116.269	378			

a. Dependent Variable: Project Delivery

b. Predictors: (Constant), Adversarial Dispute Resolution Techniques

Source: Field Survey, 2025

Table 5: Regression Coefficients results of the effect of adversarial dispute resolution techniques have no significant effect on PPP project delivery

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.872	0.218		17.753	0.000
	Adversarial Dispute Resolution Techniques	-0.123	0.054	-0.117	-2.291	0.023

a. Dependent Variable: Project Delivery

Source: Field Survey, 2025

The empirical evidence from this study reveals contrasting outcomes regarding the role of dispute resolution techniques in shaping PPP project delivery performance in Nigeria (Gunduz et al., 2024). The regression results indicate that non-adversarial dispute resolution techniques, including negotiation, mediation, conciliation, and expert determination, do not have a statistically significant effect on project delivery performance ($R^2 = 0.001$; $p = 0.482$). In contrast, adversarial techniques such as arbitration and litigation, though statistically significant ($p = 0.023$), exert a small but negative effect ($\beta = -0.117$), suggesting that greater reliance on such mechanisms is modestly associated with poorer delivery outcomes.

These findings carry important implications for theory, practice, and policy in the Nigerian infrastructure and PPP sectors. The insignificance of non-adversarial techniques contradicts the commonly held assumption in the ADR literature that such methods enhance project outcomes by reducing confrontation, preserving relationships, and promoting faster resolutions (Cheung & Yiu, 2006; Lee et al., 2020). This discrepancy may be due to inadequate implementation, poor institutional support, or the limited enforceability of ADR outcomes in the Nigerian PPP landscape (Hassan et al., 2024). Empirical studies by Ibironke et al. (2011) and Olatunji (2014) have highlighted that, although ADR clauses are increasingly included in Nigerian construction and infrastructure contracts, their usage often lacks procedural clarity, suffers from poor stakeholder training, or is abandoned midway in favour of more definitive adjudication mechanisms (Gandu et al., 2023).

Furthermore, the result aligns with Ali and Kolo (2020), who observed that while most Nigerian PPP agreements adopt ADR frameworks, parties frequently resort to arbitration or litigation when disputes become monetarily significant or politically sensitive (Ahatty et al., 2021). The weak effect observed in the current study thus reflects a possible "symbolic adoption" of non-adversarial techniques, where such methods are included contractually but not functionally used to resolve complex disputes. This echoes the findings of Aibinu and Jagboro (2002), who reported a similar pattern of low actual usage of mediation and conciliation in large-scale construction disputes across southwestern Nigeria.

On the other hand, the significant yet negative effect of adversarial techniques supports long-standing criticisms about the time-consuming, costly, and relationship-damaging nature of formal resolution mechanisms in infrastructure projects, as established (Osigbemhe & Akanni, 2024). This finding is consistent with Oyetunde et al. (2021), who found that PPP disputes resolved through arbitration or litigation in Nigeria often experience substantial delays in project delivery due to procedural bottlenecks, appeals, and limited enforcement capacity (Joseph, 2017). It also mirrors global findings by Currie & Teague (2015), who argue that adversarial processes, while necessary for certain dispute types, should be seen as a last resort, particularly in projects with long-term interdependencies like PPPs.

The modest explanatory power of the model ($R^2 = 0.014$) implies that although adversarial techniques significantly affect project delivery, other factors are likely more critical drivers, such as contractor performance, political will, procurement delays, and regulatory environment. This is in line with the broader PPP literature, including Yescombe (2017), who argues that dispute resolution should be considered only one element within a complex ecosystem of risk allocation and performance management mechanisms.

These findings highlight an urgent need for the institutional strengthening of ADR mechanisms in Nigeria. Capacity building for contract administrators, improved drafting of multi-tiered dispute resolution clauses, and the use of Dispute Avoidance Boards (DABs) may improve the effectiveness of non-adversarial approaches (Fagbohun & Onu, 2018). Likewise, public agencies overseeing PPP contracts must ensure that ADR is not merely included as boilerplate but supported by operational procedures and access to neutral, experienced third-party facilitators.

In summary, the study provides important empirical evidence that non-adversarial dispute resolution techniques currently play a negligible role in influencing PPP project delivery outcomes in Nigeria, potentially due to implementation gaps or institutional limitations (Ahatty et al., 2021). Meanwhile, adversarial techniques have a small but statistically significant negative effect, reinforcing long-standing critiques of their inefficiency in collaborative infrastructure delivery contexts (Bishop et al., 2009). These findings echo and expand upon previous Nigerian studies while aligning with international best practices that emphasise early-stage, non-adversarial dispute resolution to minimise delivery risks and enhance value-for-money in PPP projects.

4. CONCLUSION

The study demonstrates that adversarial mechanisms—especially **arbitration**—are highly embedded within PPP contracts in Southwest Nigeria, with **litigation** reserved as a final recourse after other tiers are exhausted (Panov et al., 2024; Cheung et al., 2002). While this architecture ensures enforceability, regression results show a **significant but small negative** association between greater reliance on adversarial techniques and PPP delivery performance ($R^2 = 0.014$; $\beta = -0.117$; $p = 0.023$). In contrast, non-adversarial techniques, despite their prominence in best-practice guidance, did **not** display a significant measurable effect on delivery in the present data ($R^2 = 0.001$; $p = 0.482$). Additionally, usage patterns do **not** differ significantly by firm size for either class of techniques ($p > 0.05$).

These findings imply that, in practice, adversarial steps may be invoked when disputes have already escalated, with attendant delays, transaction costs, and relationship strain that modestly depress delivery performance (Currie & Teague, 2015; Gunduz et al., 2024). Strengthening early, problem-solving mechanisms (e.g., negotiation/mediation supported by clear escalation thresholds, fixed timelines, neutral selection criteria, and resourced DRBs) and enhancing institutional capacity could help realize the often-assumed benefits of non-adversarial approaches. Contract drafters and PPP authorities in Southwest Nigeria should therefore emphasize prevention and early resolution while retaining adjudicative backstops calibrated to minimize project-disruptive effects (Cheung et al., 2002; Panov et al., 2024).

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