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Decentralization, Procurement Design, and Contract Performance in Public Works: Institutional, Economic, and Managerial Determinants of Cost and Time Outcomes

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Abstract Public works procurement remains one of the most complex and policy-sensitive domains of public sector governance, particularly in contexts characterized by decentralization, heterogeneous institutional capacities, and incomplete contracting environments. Across countries, infrastructure projects frequently experience cost overruns, time delays, renegotiations, and performance inefficiencies, raising fundamental questions about the design of procurement mechanisms, the role of local governments, and the institutional conditions under which public contracts are executed. This research article develops an integrated theoretical and empirical analysis of public works procurement performance by synthesizing insights from political economy, contract theory, institutional economics, and construction management. Drawing strictly on established literature, with particular emphasis on Italian public procurement experiences and comparative evidence from road and infrastructure projects globally, the study examines how decentralization, auction formats, bid screening, contract incompleteness, judicial efficiency, renegotiation incentives, and inflationary pressures interact to shape cost and time outcomes. The article adopts a qualitative-descriptive methodological approach grounded in extensive theoretical elaboration of empirical findings reported in prior studies. Results indicate that decentralized procurement can improve responsiveness and execution speed under favorable institutional conditions, but may also exacerbate inefficiencies when local administrative capacity is weak. Auction design and awarding criteria significantly

influence *ex post* performance, while renegotiation emerges as a structural feature of incomplete public contracts rather than an anomaly. Inflation and macroeconomic volatility further complicate cost control, particularly in long-duration road projects. The discussion highlights the policy trade-offs inherent in procurement reform, the central role of institutional quality, and the need for adaptive governance frameworks capable of balancing flexibility with accountability. The article concludes by outlining future research directions and policy implications for improving public works performance in decentralized systems.

Keywords: Public works procurement; decentralization; cost overrun; time performance; contract renegotiation; infrastructure governance

Introduction

Public infrastructure investment represents one of the most visible and economically significant functions of the modern state. Roads, bridges, public buildings, and utilities are not only physical assets but also institutional artifacts shaped by governance structures, legal frameworks, and economic incentives. Despite decades of reform efforts, public works projects across both developed and developing economies continue to suffer from persistent problems of cost overruns, time delays, quality shortfalls, and opportunistic renegotiations. These challenges are particularly pronounced in decentralized governance systems, where responsibility for procurement and execution is distributed across multiple layers of government with varying administrative capacities and political incentives.

The Italian case has attracted sustained scholarly attention because it combines a high degree of administrative decentralization with a complex regulatory environment and historically weak performance in public infrastructure delivery. Studies have documented substantial heterogeneity in procurement outcomes across regions and municipalities, raising questions about whether local governments are better positioned than central authorities to manage public works efficiently (Guccio, Pignataro, & Rizzo, 2009; Guccio, Pignataro, & Rizzo, 2014a). Decentralization is often justified on the grounds that proximity to local needs enhances

allocative efficiency and accountability. However, decentralization may also amplify coordination failures, increase exposure to local capture, and strain limited technical expertise.

Beyond governance structure, procurement design plays a crucial role in shaping contractor behavior and project outcomes. Auction formats, award criteria, and bid screening mechanisms influence not only initial prices but also *ex post* performance, including delays, renegotiations, and cost adaptations (Decarolis, 2014; Bucciol, Chillemi, & Palazzi, 2013). Public works contracts are inherently incomplete, as it is impossible to foresee all contingencies in long-term infrastructure projects. This incompleteness creates scope for renegotiation, adaptation costs, and strategic behavior by both contractors and public authorities (Bajari, Houghton, & Tadelis, 2014; Guasch, Laffont, & Straub, 2006).

The broader literature on construction management and project control further highlights the multiplicity of factors contributing to cost and time overruns, including poor planning, design changes, inflation, contractor inefficiency, and institutional weaknesses (Olawale & Sun, 2010; Mahamid, 2013; Alhomidan, 2013). While these studies often focus on specific national or sectoral contexts, their findings resonate with the institutional and economic mechanisms identified in public procurement research.

This article aims to bridge these literatures by offering a comprehensive, theoretically grounded analysis of public works procurement performance under decentralization. Rather than introducing new empirical data, the study synthesizes and elaborates on existing empirical findings to develop an integrated interpretive framework. The central research problem addressed is how institutional arrangements, procurement design choices, and economic conditions jointly shape cost and time outcomes in public works execution.

The contribution of this article lies in its depth of theoretical elaboration and its integrative perspective. By connecting insights from political economy, contract theory, judicial economics, and construction management, the study moves beyond fragmented explanations and highlights the systemic nature of

procurement performance. The literature gap addressed concerns the need for holistic interpretations that account simultaneously for decentralization, contract incompleteness, renegotiation dynamics, and macroeconomic factors such as inflation.

Methodology

The methodological approach adopted in this study is qualitative, interpretive, and theory-driven. Given the strict reliance on existing literature, the research employs an extensive analytical synthesis of peer-reviewed empirical studies, policy reports, and theoretical contributions related to public works procurement. The method can be described as a structured narrative analysis, where empirical findings reported in prior research are reinterpreted through a unified conceptual lens.

The core methodological principle is triangulation across disciplinary perspectives. Economic analyses of procurement auctions and contract performance are examined alongside institutional studies of decentralization and judicial efficiency, as well as construction management research on cost and time control. This triangulation allows for the identification of recurring mechanisms and patterns that transcend individual case studies.

In practical terms, the methodology involves several analytical steps. First, the institutional context of public works procurement is examined, with particular attention to decentralization and the allocation of responsibilities between central and local governments. Second, procurement design variables such as auction format, award criteria, and bid screening are analyzed in terms of their theoretical incentives and empirically observed outcomes. Third, the role of contract incompleteness and renegotiation is explored, drawing on both theoretical models and empirical evidence. Fourth, external economic factors, notably inflation and macroeconomic volatility, are incorporated into the analysis to account for exogenous cost pressures.

Throughout the analysis, findings from different national contexts, including Italy, Malaysia, Palestine, and Saudi Arabia, are not treated as directly

comparable in a statistical sense but are used to illustrate the generalizability of underlying mechanisms. The emphasis is on explanatory depth rather than empirical breadth. By avoiding formal modeling and quantitative synthesis, the methodology remains consistent with the requirement to explain all data and analytical reasoning in descriptive terms.

Results

The synthesis of existing research yields several interrelated findings regarding the determinants of cost and time performance in public works procurement.

One central result concerns the ambiguous effects of decentralization. Empirical analyses of Italian public works indicate that local governments can, under certain conditions, execute projects more rapidly than central authorities (Guccio, Pignataro, & Rizzo, 2014a). This improved time performance is often attributed to reduced bureaucratic layers, greater familiarity with local conditions, and more direct accountability to local constituencies. However, the same studies reveal significant variation across local jurisdictions, suggesting that decentralization amplifies differences in administrative capacity rather than uniformly improving outcomes.

Another key finding relates to procurement auction design. Evidence shows that awarding contracts solely on the basis of the lowest price can lead to adverse selection and opportunistic behavior, as contractors may submit aggressively low bids with the expectation of renegotiating terms later (Decarolis, 2014). Alternative auction formats and bid screening mechanisms can mitigate these risks by discouraging unrealistic bids and enhancing ex post performance.

Cost overruns emerge as a pervasive phenomenon across public works projects. Studies focusing on small-size public works demonstrate that auction format influences the likelihood and magnitude of cost overruns, with certain competitive mechanisms exacerbating underbidding behavior (Bucciol, Chillemi, & Palazzi, 2013). Complementary evidence from construction management research highlights managerial and institutional factors such as poor planning, inadequate supervision, and frequent design changes as critical contributors (Patil, Ullagaddi, &

Jugati, 2011; Olawale & Sun, 2010).

Time overruns are similarly widespread and often correlated with cost overruns. Contractor-related risks, including delays in mobilization and resource constraints, are consistently identified as major factors, particularly in road construction projects (Mahamid, 2013). Institutional delays, including slow decision-making and dispute resolution, further exacerbate time performance issues.

Renegotiation is identified as a structural outcome of incomplete contracts rather than an exceptional failure. Empirical studies show that renegotiations are common in public contracts and are influenced by initial award prices, contract complexity, and institutional oversight mechanisms (Decarolis & Palumbo, 2015; Guasch, Laffont, & Straub, 2006). While renegotiation can serve as an adaptive mechanism to address unforeseen contingencies, it also creates opportunities for rent extraction.

Inflation emerges as an external but significant determinant of cost performance, particularly in long-duration infrastructure projects. Case evidence from road construction illustrates how unanticipated inflation can erode cost estimates and necessitate contract adjustments (Parate, 2017). This finding underscores the interaction between macroeconomic conditions and procurement outcomes.

Discussion

The findings synthesized above point to a complex and interdependent set of mechanisms shaping public works procurement performance. Decentralization, often promoted as a means of enhancing efficiency, cannot be evaluated in isolation from institutional capacity. The Italian experience suggests that local governments can outperform central authorities when they possess adequate technical expertise, financial autonomy, and accountability structures (Guccio, Pignataro, & Rizzo, 2009). Conversely, decentralization may worsen outcomes in contexts characterized by weak governance or political capture.

Procurement design emerges as a critical lever for policy intervention. The dominance of price-based award criteria reflects a tension between transparency

and performance. While lowest-price auctions are easy to administer and defend politically, they may incentivize strategic underbidding and subsequent renegotiation. This dynamic aligns with theoretical models of incomplete contracts, which predict that *ex ante* competition may shift opportunism to the *ex post* stage (Bajari, Houghton, & Tadelis, 2014).

Renegotiation itself should not be viewed solely as a pathology. From a theoretical perspective, renegotiation can enhance efficiency by allowing contracts to adapt to unforeseen contingencies (Anderlini, Felli, & Postlewaite, 2007). The challenge lies in designing institutional safeguards that prevent opportunistic exploitation while preserving necessary flexibility. Judicial efficiency plays a crucial role in this regard, as slow or unpredictable dispute resolution can weaken contractual discipline (Finocchiaro Castro & Guccio, 2014).

The discussion also highlights the relevance of construction management insights for public procurement policy. Factors such as planning quality, risk management, and stakeholder coordination, often emphasized in engineering and management studies, complement economic analyses of incentives. The convergence of findings across diverse contexts suggests that certain drivers of cost and time overruns are systemic rather than country-specific.

Limitations of this study stem from its reliance on secondary sources and the absence of new empirical testing. While the integrative approach enhances theoretical understanding, it cannot resolve causal ambiguities inherent in observational studies. Future research could build on this framework by employing mixed-methods designs that combine quantitative analysis with qualitative case studies.

Conclusion

This article has provided an extensive, theory-driven analysis of public works procurement performance under conditions of decentralization and contract incompleteness. By synthesizing empirical findings from economics, political science, and construction management, the study has demonstrated that cost overruns, time delays, and renegotiations are not isolated failures but interconnected outcomes shaped

by institutional design, procurement mechanisms, and economic context.

The central conclusion is that improving public works performance requires an integrated policy approach. Decentralization must be accompanied by capacity-building and accountability measures. Procurement design should balance competitive pressures with safeguards against opportunism. Contract frameworks must acknowledge incompleteness and incorporate transparent adaptation mechanisms. Finally, macroeconomic risks such as inflation should be systematically incorporated into project planning and contract design.

By emphasizing theoretical depth and institutional nuance, this article contributes to a more holistic understanding of public procurement challenges and offers a foundation for future research and policy reform aimed at enhancing the efficiency and credibility of public infrastructure investment.

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