

Price and Cost Analysis in Procurement Decision-Making: A Systematic Review of Techniques, Integration Frameworks, and Strategic Applications

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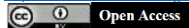
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ABSTRACT

Price and cost analysis constitute fundamental pillars of strategic procurement and financial decision-making in contemporary organisational management. Despite their widespread application across industries, significant gaps persist in the systematic integration of these analytical frameworks within procurement ecosystems, particularly in developing economies where institutional procurement capabilities remain underdeveloped. This paper presents a comprehensive review of price and cost analysis techniques, examining their theoretical foundations, methodological applications, and integrative potential through the lens of Total Cost of Ownership (TCO) and Cost-Volume-Profit (CVP) analysis. Drawing on established management accounting literature and procurement theory, we synthesise key analytical approaches—including market benchmarking, should-cost modelling, activity-based costing, and cost-benefit analysis—into a coherent framework for procurement decision-making. The study identifies critical interdependencies between price reasonableness assessment and cost structure evaluation, demonstrating that effective procurement requires simultaneous deployment of both analytical modalities rather than sequential or isolated application. We further examine the regulatory landscape governing procurement analysis, including antitrust considerations, government contracting standards, and cost accounting regulations. The findings suggest that organisations adopting integrated price-cost analysis frameworks achieve superior procurement outcomes, characterised by enhanced supplier negotiation leverage, reduced total ownership costs, and improved risk mitigation. This paper contributes to the procurement literature by providing a structured taxonomy of analytical techniques and proposing an integrative model that links price analysis, cost analysis, and strategic contracting. The implications extend to procurement practitioners, policymakers, and researchers seeking to advance evidence-based purchasing strategies in both public and private sectors.

1. Introduction

1.1 Background and Context

The global procurement landscape has undergone substantial transformation over the past two decades, driven by supply chain complexity, heightened competitive pressures, and evolving regulatory requirements (Monczka et al., 2021; Burt et al., 2022; van Weele, 2010). Within this context, the analytical distinction between price and cost has emerged as a critical determinant of procurement effectiveness. Price analysis—defined as the assessment of price reasonableness without detailed examination of underlying cost elements—and cost analysis—the systematic decomposition of cost components and drivers—represent complementary yet methodologically distinct approaches to procurement evaluation (Carter & Narasimhan, 2019; Drury, 2020; Ellram, 1995).

The strategic importance of these analytical frameworks is particularly pronounced in resource-constrained environments where procurement decisions carry significant implications for organisational sustainability. In developing economies, where institutional procurement maturity varies considerably,

the application of rigorous price and cost analysis remains inconsistent, often resulting in suboptimal supplier selection, inflated acquisition costs, and inadequate risk management (Khamooshi & Khaksar-Haghani, 2014; Andersson & Hosseini, 2024). The International Monetary Fund (2021) has emphasised the necessity of robust price and volume measurement frameworks in national accounts, underscoring the macroeconomic significance of micro-level procurement analytics.

1.2 Problem Statement

Despite the theoretical maturity of price and cost analysis as management accounting disciplines, several persistent challenges constrain their effective implementation in procurement practice. First, practitioners frequently conflate price and cost analysis, treating them as interchangeable rather than complementary methodologies, thereby compromising analytical rigor (Garrison et al., 2022; Ellram & Siferd, 1993). Second, the integration of these analytical approaches with broader strategic frameworks—particularly Total Cost of Ownership (TCO) and Cost-Volume-Profit (CVP) analysis—remains under-theorised in the procurement literature (Bhandari, 2015; Ellram, 1995). Third, the regulatory complexity surrounding procurement analysis, spanning antitrust legislation, government contracting standards, and cost accounting regulations, creates compliance burdens that may deter the systematic application of analysis (Office of Management and Budget, 2018; Carter & Mueller, 2011).

These challenges are compounded by methodological fragmentation. While price analysis techniques—including market research, benchmarking, and price index tracking—are well-documented in marketing and economics literature (Malhotra et al., 2021), cost analysis methodologies such as activity-based costing, parametric estimation, and value engineering originate from distinct disciplinary traditions (Horngren et al., 2022; Hilton et al., 2020; Cooper & Yoshikawa, 1994). The absence of unified frameworks bridging these methodological domains limits the strategic utility of procurement analysis.

1.3 Research Objectives

This paper addresses these identified gaps through three primary objectives:

1. To systematise price and cost analysis techniques within a coherent taxonomic framework that clarifies their methodological distinctions, interdependencies, and appropriate application contexts.
2. To examine the integrative potential of price and cost analysis through established management frameworks, specifically Total Cost of Ownership and Cost-Volume-Profit analysis, demonstrating how these integrative approaches enhance procurement decision-making.
3. To evaluate the regulatory and strategic implications of analytical procurement practices, including legal compliance requirements, supplier negotiation dynamics, and contracting considerations.

1.4 Significance of the Study

This research offers contributions to both theoretical and practical domains. Theoretically, it advances procurement scholarship by clarifying the structural relationships among price analysis, cost analysis, and strategic management frameworks, thereby addressing the methodological fragmentation previously identified (Cousins et al., 2008; Cox, 2014). Practically, it equips procurement professionals with a framework for selecting and applying analytical techniques tailored to specific procurement contexts, risk profiles, and strategic objectives (Hesping & Schiele, 2016; Schiele et al., 2011). The findings are especially pertinent to public sector procurement, where regulatory compliance and fiscal accountability demand high levels of analytical rigor (CIPS, 2020).

1.5 Structure of the Paper

The remainder of this paper is structured as follows. Section 2 reviews the theoretical foundations and methodological techniques of price analysis. Section 3 examines cost analysis methodologies, including direct and indirect cost categorisation, estimation techniques, and modelling approaches.

Section 4 presents the integrative framework that links price and cost analysis to Total Cost of Ownership, Cost-Volume-Profit analysis, and strategic supplier negotiation. Section 5 addresses regulatory considerations and compliance requirements. Section 6 concludes with implications for practice, limitations, and directions for future research.

2. Price Analysis: Theoretical Foundations and Methodological Techniques

2.1 Conceptualising Price Analysis

Price analysis occupies a distinct epistemological position within procurement analytics, characterised by its reliance on external market data rather than internal cost decomposition. Formally defined, price analysis involves evaluating price reasonableness and competitiveness by comparing prices with market benchmarks, historical data, and competitors' pricing, without a detailed examination of the supplier's cost structure (Carter & Narasimhan, 2019; van Weele, 2010). This external orientation distinguishes price analysis from cost analysis, which requires access to proprietary supplier cost information.

The theoretical justification for price analysis rests on market efficiency assumptions. In competitive markets with sufficient transparency, prevailing prices aggregate information about supply-demand dynamics, production costs, and competitive positioning, thereby serving as reliable indicators of value (Price & Burgess, 2006; Porter, 1980, 1998). However, market imperfections—including information asymmetry, oligopolistic structures, and regulatory distortions—may compromise the validity of price-only assessments, necessitating complementary cost analysis (Koller et al., 2015; Eckhaus et al., 2013).

2.2 Market Research and Benchmarking

Market research constitutes the empirical foundation of price analysis, encompassing systematic data collection on market conditions, customer preferences, competitor strategies, and pricing benchmarks (Malhotra et al., 2021; Chopra et al., 2018). Effective market research in procurement contexts requires integrating multi-source data, including industry publications, trade associations, government statistics, and primary survey data.

Benchmarking extends market research by establishing comparative performance standards against which proposed prices are evaluated (Hurkens & Wynstra, 2004; Bhutta & Huq, 2002). Benchmarking methodologies in procurement may be categorised as:

- Internal benchmarking: Comparison of prices across organisational units, product lines, or temporal periods, leveraging historical purchasing data to identify pricing anomalies and trends.
- Competitive benchmarking: Analysis of competitor pricing strategies and market positioning to assess the relative competitiveness of quoted prices.
- Functional benchmarking: Comparison with best-in-class organisations outside the immediate industry, identifying innovative pricing practices and cost optimisation opportunities.

The validity of benchmarking depends critically on comparability criteria. Effective benchmarks require alignment in product specifications, service levels, volume assumptions, and contractual terms—factors that may be difficult to standardise in complex procurement environments (Foster, 2020; Williams et al., 2013).

2.3 Price Indices and Temporal Analysis

Price indices provide quantitative instruments for tracking price movements over time and evaluating quoted prices against macroeconomic trends. The Consumer Price Index (CPI) measures the impact on household purchasing power, while the Producer Price Index (PPI) tracks input cost pressures across supply chains (International Monetary Fund, 2021). The Wholesale Price Index (WPI) serves to analyse the manufacturing and distribution sectors.

Temporal price analysis involves examining historical price data to identify cyclical patterns, seasonal fluctuations, and structural breaks. Such analysis enables procurement professionals to distinguish between temporary market distortions and persistent pricing trends, informing timing decisions and contract duration strategies. The integration of price indices with organisational purchasing data supports inflation-adjusted cost tracking and real-term price evaluation.

2.4 Factors Influencing Price Dynamics

Procurement price analysis must account for multiple determinants of price formation:

Supply and Demand Dynamics: Fundamental market equilibrium conditions determine baseline price levels. Procurement strategies must anticipate demand surges, supply disruptions, and inventory cycle effects on pricing (Dou et al., 2024).

Input Cost Volatility: Raw materials, labour, energy, and transportation costs fluctuate directly and are reflected in supplier pricing, particularly in cost-plus contractual arrangements. Currency exchange rate movements introduce additional volatility in international procurement contexts (Kotabe & Murray, 2004).

Competitive Intensity: Market structure—ranging from perfect competition to monopoly—fundamentally shapes pricing behaviour. In concentrated markets, price analysis must incorporate strategic interaction effects and potential collusion risks (Porter, 1980).

Regulatory and Policy Interventions: Tariffs, subsidies, environmental regulations, and trade policies may significantly alter price-formation mechanisms, necessitating regulatory impact assessment within price-analysis frameworks.

2.5 Price Analysis Methodologies

Contemporary price analysis employs diverse methodological tools:

Comparison Analysis: Systematic comparison of quoted prices against comparable products, services, or historical transactions. This method requires rigorous standardisation of comparison units and adjustment for quality, volume, and term differentials (Bhutta & Huq, 2002).

Should-Cost Analysis: Estimation of expected production costs based on engineering analysis, industry benchmarks, and component pricing. While bordering on cost analysis, should-cost modelling relies on external data rather than supplier-provided cost breakdowns (Carter & Mueller, 2011; Hiller & Prilepok, 2017; Heitman et al., 1984).

Competitive Bidding: Solicitation of multiple supplier proposals to establish market price ranges and identify outliers. Competitive bidding serves both price discovery and supplier qualification functions (Schoenherr & Mabert, 2008; Daly & Nath, 2005).

Historical Pricing Analysis: Trend analysis of organisational purchasing data to identify price trajectories, seasonal patterns, and vendor-specific pricing behaviours.

3. Cost Analysis: Structural Decomposition and Estimation Methodologies

3.1 Theoretical Foundations of Cost Analysis

Cost analysis represents a fundamentally different analytical orientation from price analysis, characterised by internal decomposition of cost structures rather than external market comparison. The theoretical basis of cost analysis derives from managerial accounting and microeconomic production theory, which conceptualise costs as the valuations of factor inputs (Drury, 2020; Horngren et al., 2022; Al-Omri & Drury, 2007).

Cost analysis serves multiple organisational functions: cost estimation for budgeting and pricing, cost comparison for make-or-buy decisions, cost control through variance analysis, and cost optimisation via driver identification (Eldenburg et al., 2017; Schulze et al., 2012). The methodological diversity of cost analysis reflects these multiple applications, encompassing techniques ranging from simple cost classification to complex mathematical modelling (Niazi et al., 2006).

3.2 Direct and Indirect Cost Classification

The foundational taxonomy of cost analysis distinguishes between direct and indirect costs:

Direct Costs are expenses traceable to specific cost objects (products, services, or projects) with minimal allocation ambiguity. Direct costs typically include:

- Raw materials and components directly consumed in production
- Direct labour wages for production personnel
- Direct expenses such as equipment rental or transportation specifically attributable to the cost object

Direct costs exhibit variable cost behaviour, fluctuating in proportion to production volume. This characteristic facilitates accurate cost estimation and enables direct marginal analysis.

Indirect Costs (overhead) support organisational operations without direct traceability to specific cost objects. Indirect cost categories encompass:

- Facility costs (rent, utilities, depreciation)
- Administrative labor and support functions
- General supplies and shared resources
- Corporate overhead allocations

Indirect costs introduce methodological complexity due to allocation requirements. Traditional allocation methods employ predetermined rates based on volume metrics (direct labour hours, machine hours), while activity-based costing traces indirect costs through activity consumption patterns (Garrison et al., 2022; Ben-Arieh & Qian, 2003).

3.3 Cost Estimation and Modelling Techniques

Cost estimation methodologies vary in sophistication and data requirements:

Analogous Estimation: Derivation of cost estimates from similar past projects or products, adjusted for scale, complexity, and inflation differentials. This technique requires comprehensive historical cost databases and explicit adjustment protocols (Hicks et al., 2002).

Parametric Estimation: Mathematical modelling of cost relationships using statistical techniques. Parametric models express costs as functions of quantitative drivers (weight, complexity, performance specifications), enabling rapid estimation for preliminary planning (Khamooshi & Khaksar-Haghani, 2014; Hajare, 1998).

Bottom-Up Estimation: Detailed aggregation of component-level cost estimates. This approach maximises accuracy but requires extensive engineering data and is resource-intensive (Pahl & Beitz, 1996; Ulrich & Eppinger, 2000).

Three-Point Estimation: Incorporation of uncertainty through optimistic, pessimistic, and most-likely cost scenarios, supporting probabilistic budgeting and risk assessment.

Cost modelling extends estimation by developing mathematical representations of cost behaviour and the relationship between drivers. Regression analysis, optimisation models, and simulation techniques enable sensitivity analysis and scenario planning, supporting strategic decision-making under uncertainty (DeHoff et al., 2009; Theobald, 1995).

3.4 Historical Data, Cost Formulas, and Industry Benchmarks

The empirical foundation of cost analysis rests on three data sources:

Historical Cost Data: Organisational records of past expenditures, labour hours, material quantities, and resource consumption. Effective historical data management requires standardised tracking systems, inflation adjustment protocols, and data quality controls. Statistical techniques—including regression analysis and time series analysis—extract cost patterns and relationships from historical databases.

Cost Formulas: Mathematical expressions of cost-driver relationships, derived from historical analysis, engineering studies, or expert judgment. Material cost formulas incorporate quantity, unit price, and waste factors; labour cost formulas integrate hours, wage rates, and productivity adjustments; overhead formulas apply predetermined allocation rates or activity-based cost drivers (Watson et al., 2006).

Industry Benchmarks: Reference standards derived from comparable organisations or projects within the industry. Benchmark data sources include industry associations, research reports, government agencies, and specialised benchmarking studies. Benchmark incorporation enables external validation of cost estimates and identification of performance gaps (Schiele et al., 2011; Hespington & Schiele, 2016).

3.5 Advanced Cost Analysis Methodologies

Contemporary cost analysis employs sophisticated methodologies:

Activity-Based Costing (ABC): Allocation of indirect costs through activity consumption tracing, providing more accurate product and service costing than traditional volume-based allocation. ABC identifies non-volume cost drivers (setup complexity, transaction processing) that distort traditional costing in diverse product environments (Schulze et al., 2012; Ben-Arieh & Qian, 2003).

Cost-Benefit Analysis (CBA): Systematic comparison of project costs with quantified benefits, incorporating time value of money through discounting and net present value calculation (Boardman et al., 2018; Breyer & Cieplinski, 2017). CBA supports investment decisions by identifying economically favourable alternatives.

Break-Even Analysis: Determination of sales volume at which total revenue equals total costs, providing baseline profitability thresholds and informing pricing decisions.

Cost Variance Analysis: Comparison of actual costs against budgeted or standard costs, identifying deviations and triggering corrective actions.

Sensitivity Analysis: Evaluation of cost estimate responsiveness to changes in underlying assumptions and drivers, highlighting critical uncertainties and informing risk management.

Value Analysis/Value Engineering: Systematic examination of product functions to eliminate unnecessary costs while preserving essential performance characteristics.

Six Sigma: Data-driven quality improvement methodology that reduces process variation and associated defect costs.

4. Integrative Frameworks: Linking Price and Cost Analysis

4.1 Total Cost of Ownership: A Comprehensive Cost Perspective

Total Cost of Ownership (TCO) represents a paradigmatic shift from acquisition-price focus to lifecycle cost perspective. TCO encompasses all costs associated with acquiring, operating, maintaining, and disposing of an asset over its entire useful life (Bhandari, 2015; Ellram, 1995, 1996; Ellram & Siferd, 1993). The TCO framework integrates price analysis (acquisition cost evaluation) with cost analysis (operational and maintenance cost decomposition) into a unified decision-support model.

TCO components include:

- Acquisition Costs: Purchase price, taxes, transportation, installation, and initial implementation expenses
- Operating Costs: Energy consumption, consumables, routine labor, and operational maintenance
- Maintenance and Support Costs: Scheduled and unscheduled repairs, technical support, and spare parts
- Training and Implementation Costs: Personnel training programs and system integration expenses
- Downtime and Disruption Costs: Productivity losses from equipment failures and maintenance interventions

- Upgrade and Replacement Costs: Performance enhancements, technology refresh, and compatibility modifications
- Disposal and End-of-Life Costs: Decommissioning, environmental compliance, and asset recovery expenses

The TCO framework demonstrates that acquisition price frequently represents a minority share of total lifecycle costs. In capital equipment procurement, operating and maintenance costs may exceed purchase price by substantial margins, rendering price-only analysis potentially misleading (Bhutta & Huq, 2002; Hurkens & Wynstra, 2004).

4.2 Integrating Price and Cost Analysis within TCO

The TCO framework creates structural linkages between price and cost analysis:

Price Analysis in TCO: Market-based evaluation of acquisition costs ensures competitive pricing for the initial purchase. Price benchmarking, competitive bidding, and should-cost analysis establish acquisition cost baselines.

Cost Analysis in TCO: Detailed decomposition of operating, maintenance, and disposal costs enables accurate lifecycle cost estimation. Activity-based costing, parametric models, and historical data analysis support operational cost projection.

Integration Mechanism: The TCO framework synthesises these analytical inputs into discounted cash flow models, enabling net present value comparison of procurement alternatives with divergent acquisition and operating cost profiles.

4.3 Cost-Volume-Profit Analysis

Cost-Volume-Profit (CVP) analysis examines the interrelationships among costs, sales volume, and profitability, providing decision support for pricing, product mix, and volume planning (Horngren et al., 2022; Hilton et al., 2020; Drury, 2018).

CVP analysis rests on cost behaviour classification:

- Fixed costs remain constant across relevant volume ranges
- Variable costs change proportionally with activity volume

The contribution margin—sales revenue minus variable costs—represents the amount available to cover fixed costs and generate profit. The contribution margin ratio facilitates rapid assessment of profitability across volume scenarios.

Key CVP applications include:

- Break-Even Analysis: Calculation of sales volume required to achieve zero profit (fixed costs divided by contribution margin per unit)
- Target Profit Analysis: Determination of volume or price adjustments needed to achieve specified profit goals
- Sensitivity Analysis: Assessment of profit impacts from changes in costs, prices, or volume

CVP analysis informs procurement decisions by revealing how supplier pricing affects organisational profitability. Volume discount negotiations, make-or-buy thresholds, and inventory policy optimisation all benefit from CVP insights.

4.4 Break-Even Analysis and Pricing Strategy

The break-even point serves as a critical reference for pricing strategy formulation. Pricing decisions directly influence break-even volume through contribution margin effects:

- Price increases raise contribution margins, reducing break-even volume requirements
- Price decreases lower contribution margins, necessitating higher sales volumes

Strategic pricing approaches informed by break-even analysis include:

Cost-Plus Pricing: Addition of a markup percentage to cost base, ensuring cost recovery and target profit attainment. This approach provides pricing floors but may ignore market demand elasticity.

Target Profit Pricing: Price setting designed to achieve specific profit objectives, integrating break-even analysis with strategic financial planning.

Competitive Pricing: Price positioning relative to market competitors, balancing market share objectives with profitability requirements.

Price Elasticity Consideration: Assessment of demand responsiveness to price changes, informing optimal price-volume trade-offs.

4.5 Cost-Benefit Analysis in Procurement

Cost-Benefit Analysis (CBA) extends beyond pure cost evaluation to incorporate quantified benefits in procurement decisions (Boardman et al., 2018). CBA methodology requires:

1. **Comprehensive Identification:** Enumeration of all relevant costs and benefits, including direct financial impacts, indirect effects, and intangible outcomes.
2. **Monetisation:** Conversion of diverse cost and benefit categories into common monetary units, enabling quantitative comparison.
3. **Time Value Adjustment:** Discounting of future costs and benefits to present values using appropriate discount rates, reflecting opportunity costs and time preferences (Office of Management and Budget, 2018).
4. **Net Present Value Calculation:** Aggregation of discounted benefits minus discounted costs, with positive NPV indicating economically favourable projects.
5. **Sensitivity Analysis:** Testing of result robustness under varying assumptions and parameter values.

CBA provides rigorous justification for procurement investments, particularly in public-sector contexts where accountability requirements demand explicit quantification of benefits.

4.6 Supplier Negotiation and Contracting

Effective procurement requires translation of analytical insights into contractual outcomes. The negotiation process integrates price and cost analysis findings into supplier agreements (CIPS, 2020; Krause et al., 2007; Autry & Golicic, 2010):

Pre-Negotiation Preparation: Comprehensive evaluation of supplier capabilities, market positioning, and financial stability. Development of clear objectives, fallback positions, and Best Alternative to Negotiated Agreement (BATNA).

Negotiation Execution: Communication of requirements, constraints, and expectations. Discussion of pricing, volume discounts, delivery schedules, quality standards, payment terms, and value-added provisions. Exploration of mutual gains and concession trading.

Contract Development: Formalisation of negotiated terms into legally binding agreements addressing:

- Pricing mechanisms (fixed price, cost-plus, incentive-based)
- Performance standards and quality requirements
- Delivery schedules and logistics arrangements
- Intellectual property and confidentiality provisions
- Risk allocation and liability limitations
- Dispute resolution mechanisms
- Termination conditions and transition arrangements

Performance Management: Post-contractual monitoring of supplier performance against Key Performance Indicators (KPIs), periodic review, and continuous improvement initiatives (Krause & Ellram, 1997; Krause & Scannell, 2002; Sillanpää et al., 2015).

5. Regulatory and Compliance Considerations

5.1 Antitrust and Competition Law

Procurement price analysis must operate within antitrust constraints prohibiting anti-competitive practices. Price-fixing agreements, bid-rigging conspiracies, and market allocation schemes constitute criminal violations in most jurisdictions. Procurement professionals must ensure that price information gathering and supplier discussions do not facilitate collusion or create an appearance of collusive behaviour (Nalebuff & Brandenburger, 1997).

5.2 Government Contracting Regulations

Public sector procurement operates under specialised regulatory frameworks. In the United States, the Federal Acquisition Regulation (FAR) establishes detailed requirements for pricing and cost analysis in government contracts. Similar regulatory frameworks exist in other jurisdictions, imposing requirements for certified cost and pricing data, compliance with cost accounting standards, and audit rights (Carter & Mueller, 2011).

5.3 Cost Accounting Standards

Government contracting and defence procurement frequently require adherence to Cost Accounting Standards (CAS) that prescribe uniform cost allocation practices. CAS compliance necessitates documented cost accounting procedures, consistent cost classification, and audit trail maintenance.

5.4 Labour and Tax Regulations

Procurement cost analysis must incorporate applicable labour standards (minimum wage, overtime, safety requirements) and tax obligations (sales tax, VAT, income tax). Failure to account for regulatory labour and tax costs may result in legal liability and financial penalties.

5.5 Data Privacy and Confidentiality

Price and cost analysis frequently involves sensitive supplier information, proprietary cost data, and competitive intelligence. Organisations must implement data protection measures consistent with applicable privacy regulations and contractual confidentiality obligations.

5.6 Ethical Standards

Ethical procurement analysis requires accurate cost representation, fair price comparisons, transparent supplier negotiations, and the avoidance of deceptive practices. Professional codes of conduct from organisations such as the Chartered Institute of Procurement & Supply (CIPS, 2020) provide ethical guidance.

6. Discussion

6.1 Synthesis of Findings

This paper has presented a comprehensive review of price and cost analysis techniques, their integrative frameworks, and regulatory contexts. Several key findings emerge from this analysis:

First, the methodological distinction between price analysis and cost analysis is analytically significant but practically complementary. Price analysis provides market context and competitive benchmarks; cost analysis reveals structural cost drivers and optimisation opportunities. Effective procurement requires both perspectives, integrated through frameworks such as TCO and CVP analysis (Ellram, 1995; Bhutta & Huq, 2002).

Second, the TCO framework demonstrates that procurement decisions based solely on acquisition price may systematically misallocate resources by ignoring lifecycle cost implications. Organisations adopting TCO perspectives frequently identify procurement alternatives with higher acquisition prices but substantially lower total ownership costs (Hurkens & Wynstra, 2004; Bhandari, 2015).

Third, regulatory compliance imposes non-trivial constraints on analytical procurement practices. The complexity of antitrust, government contracting, labour, tax, and data privacy regulations creates compliance costs that may disproportionately burden smaller organisations, potentially affecting competitive dynamics.

6.2 Theoretical Implications

This review contributes to procurement theory by articulating the structural relationships between price analysis, cost analysis, and strategic management frameworks. The proposed integrative model—linking market-based price evaluation, cost structure decomposition, TCO lifecycle analysis, and CVP profitability assessment—provides a more comprehensive analytical foundation than the isolated application of techniques.

The findings suggest that procurement effectiveness depends not merely on the selection of analytical techniques but also on framework integration and contextual adaptation (Cox, 2014; Cox et al., 2005). Organisations operating in different market structures, regulatory environments, and strategic positions require customised analytical configurations rather than universal best practices (Schuh et al., 2011; Schumacher et al., 2008).

6.3 Practical Implications

For procurement practitioners, this review provides a structured decision-support framework for selecting and deploying techniques. The taxonomy of price analysis methods (comparison, market research, indices, should-cost, competitive bidding, historical analysis) and cost analysis methods (classification, estimation, modelling, ABC, CBA, break-even, variance, sensitivity, value engineering, Six Sigma) enables systematic matching of analytical approaches to procurement requirements (Hesping & Schiele, 2016; Schiele et al., 2011).

For organisational managers, the TCO and CVP integration frameworks support strategic procurement planning, capital budgeting, and profitability optimisation. The emphasis on lifecycle cost perspective and contribution margin analysis aligns procurement decisions with broader financial performance objectives (Kaplan & Norton, 1992, 2006).

For policymakers, the regulatory review highlights the compliance burden associated with analytical procurement requirements, suggesting potential opportunities for regulatory simplification without compromising accountability.

6.4 Limitations

This review is subject to several limitations. As a conceptual synthesis rather than an empirical investigation, it does not provide quantitative evidence of the technique's effectiveness or the framework's performance. The reliance on established literature may overlook emerging analytical innovations, particularly in digital procurement and artificial intelligence applications (Liu et al., 2023; Wang et al., 2022). The regulatory focus on the United States and general international frameworks may not capture jurisdiction-specific requirements relevant to particular procurement contexts.

6.5 Directions for Future Research

Future research should address the identified limitations through:

- Empirical studies examining the relationship between analytical procurement practices and organisational performance outcomes
- Investigation of digital technology impacts on price and cost analysis, including big data analytics, machine learning, and blockchain applications (Liu et al., 2023; Wirtz, 2023)
- Comparative regulatory analysis across jurisdictions, identifying best practices and harmonisation opportunities
- Development of sector-specific analytical frameworks addressing unique cost structures and regulatory requirements
- Exploration of sustainable procurement practices and their integration with cost analysis frameworks (Koberg & Longoni, 2019)

7. Conclusion

Price and cost analysis constitute essential, complementary disciplines within strategic procurement management. This paper has systematically reviewed the theoretical foundations, methodological techniques, integrative frameworks, and regulatory contexts governing these analytical approaches. The central argument—that effective procurement requires simultaneous deployment of price and cost analysis, integrated through Total Cost of Ownership and Cost-Volume-Profit frameworks—finds strong support in the reviewed literature.

The transformation of procurement from transactional purchasing to strategic value creation demands increasingly sophisticated analytical capabilities (Eltantawy et al., 2014; Glavee-Geo, 2016). Organisations that develop integrated price-cost analysis competencies, supported by appropriate technological infrastructure and regulatory compliance frameworks, will achieve sustainable competitive advantage in procurement performance (Andersson & Hosseini, 2024; Wellener et al., 2022).

The methodological taxonomy and integrative framework presented in this review provide a foundation for advancing both procurement practice and research. As supply chains grow more complex and procurement decisions carry greater strategic weight, the rigorous application of price and cost analysis will remain indispensable to organisational success.

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