The Impact of Inflation on the Efficiency of Performance-Based Budgeting and Managerial Controls

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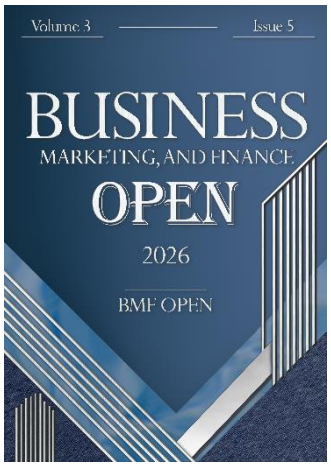

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Abstract: This study aimed to examine the impact of inflationary pressure on the efficiency of performance-based budgeting and the effectiveness of managerial controls in governmental and public organizations in Tehran. This applied, quantitative, cross-sectional study used a descriptive-correlational design. The statistical population consisted of managers, financial officers, budget experts, accountants, internal auditors, and administrative specialists employed in governmental organizations, municipalities, and state-affiliated institutions in Tehran. A total of 384 eligible participants were selected through multistage and proportionate stratified sampling. Data were collected using a structured questionnaire measuring inflationary pressure, performance-based budgeting efficiency, and managerial control effectiveness. Content validity was confirmed by specialists in accounting, economics, public administration, and financial management, while internal consistency was verified using Cronbach's alpha. Data were analyzed through Pearson correlation, multiple regression analysis, confirmatory factor analysis, structural equation modeling, and bootstrap mediation analysis using SPSS and AMOS software. Inflationary pressure was negatively correlated with performance-based budgeting efficiency ($r = -0.64$, $p < 0.01$) and managerial control effectiveness ($r = -0.58$, $p < 0.01$), whereas performance-based budgeting efficiency was positively correlated with managerial control effectiveness ($r = 0.69$, $p < 0.01$). Inflationary pressure significantly predicted lower performance-based budgeting efficiency ($\beta = -0.62$, $p < 0.001$) and lower managerial control effectiveness ($\beta = -0.52$, $p < 0.001$). The structural model showed significant direct effects of inflationary pressure on performance-based budgeting efficiency ($\beta = -0.67$, $p < 0.001$) and managerial control effectiveness ($\beta = -0.39$, $p < 0.001$). Performance-based budgeting efficiency positively predicted managerial control effectiveness ($\beta = 0.46$, $p < 0.001$). The indirect effect of inflationary pressure on managerial control effectiveness through budgeting efficiency was also significant ($\beta = -0.31$). Inflationary pressure substantially weakens performance-based budgeting and managerial controls by reducing the accuracy of cost estimates, distorting performance standards, undermining budget credibility, and complicating variance interpretation and corrective decision-making.

Keywords: Inflationary pressure; performance-based budgeting; managerial controls; budget efficiency; financial management; public organizations.

1. Introduction

Inflation is among the most consequential macroeconomic phenomena affecting the design, implementation, and evaluation of public-sector financial systems. Although it is commonly defined as a sustained increase in the general price level, its organizational implications extend far beyond the reduction of household purchasing power. Inflation alters the real value of appropriations, weakens the reliability of expenditure forecasts, changes the relative prices of inputs, complicates procurement decisions, and reduces the comparability of planned and realized financial outcomes. In public organizations, these effects are particularly important because budgets are generally

approved before expenditures occur and are implemented within administrative and legal frameworks that may not permit rapid adjustment to changing economic conditions [1, 2]. Consequently, when inflation accelerates or becomes unpredictable, the monetary values incorporated into approved budgets may quickly lose their practical meaning, while the real resources available to managers become substantially lower than the amounts originally planned. Under such circumstances, the capacity of budgeting systems to allocate resources efficiently, assess performance fairly, and support managerial decision-making becomes increasingly uncertain.

The inflationary environment in Iran has been shaped by a complex interaction of monetary, fiscal, structural, external, and institutional factors. Research on the Iranian economy has repeatedly emphasized the central role of monetary expansion in the formation and persistence of inflation. Evidence obtained through vector autoregressive analysis indicates that changes in monetary variables can significantly affect the inflationary process, particularly when monetary growth is not matched by corresponding increases in productive capacity [3]. Inflation in Iran has also been associated with a broader set of macroeconomic determinants, including exchange-rate movements, fiscal imbalances, liquidity growth, production constraints, and expectations. Bayesian model-averaging and weighted least-squares analyses have shown that inflation cannot be adequately explained by a single variable and instead reflects the combined influence of several economic and policy-related factors [4]. This multidimensional character is important for public-sector budgeting because organizations must operate within an environment in which the causes, duration, and magnitude of price changes are not always predictable.

The relationship between fiscal structure and inflation is particularly relevant to the functioning of public budgets. The composition of government revenues and expenditures, the persistence of budget deficits, and the methods used to finance those deficits can generate inflationary pressures that subsequently reduce the real effectiveness of the budget itself. Research on Iran has shown that the structure of the government budget, monetary dynamics, and inflation are closely interconnected, suggesting that weaknesses in fiscal discipline may contribute to price instability while inflation simultaneously undermines fiscal planning [5]. More recent evidence has demonstrated that financing budget deficits through borrowing from the central bank can create stronger inflationary effects than financing through the sale of bonds in the capital market, although both methods may have important macroeconomic consequences depending on the institutional conditions under which they are used [1]. Therefore, inflation should not be treated merely as an external variable affecting public organizations; it may also emerge from the broader fiscal and monetary arrangements within which those organizations operate.

External shocks further complicate this relationship. As an oil-dependent economy, Iran is vulnerable to fluctuations in global energy markets, which can affect government revenues, economic growth, employment, fiscal balances, and inflation. Changes in oil prices influence both the resources available to the state and the monetary-fiscal responses adopted when revenues decline. Research has found that global oil-price movements can affect inflation, unemployment, economic growth, and the budget deficit in Iran, thereby creating a chain of pressures that may ultimately influence the operation of public organizations [6]. Similarly, oil-income shocks have been shown to affect budget deficits, output growth, and inflation, demonstrating that external revenue volatility can be transmitted through the fiscal system and alter macroeconomic stability [7]. Monetary-policy and oil-revenue shocks may also exert simultaneous effects on inflation and economic growth, indicating that public budgeting takes place within a dynamic environment in which fiscal resources, monetary conditions, and output performance are closely connected [8].

Exchange-rate instability constitutes another important channel through which inflation affects organizational budgets. Depreciation of the national currency raises the domestic cost of imported goods, equipment, technology,

raw materials, and services, while also influencing inflation expectations and domestic price-setting behavior. In Iran, the relationship between exchange-rate fluctuations and core inflation appears to be reciprocal, meaning that exchange-rate movements contribute to inflation deviations while inflationary instability can also intensify pressure on the exchange rate [9]. This interaction creates severe difficulties for organizations whose operational plans depend on imported materials, foreign technology, contracted services, or price-sensitive capital projects. Budget estimates prepared on the basis of one exchange-rate assumption may become obsolete before implementation, causing cost overruns, delays, project rescheduling, and the need for repeated reallocations. These problems reduce the credibility of financial plans and weaken the ability of managers to compare actual expenditures with predetermined standards.

Inflation also affects the social and distributive context within which public budgeting is conducted. Its effects are not evenly distributed across households, sectors, commodities, or income groups. Analysis of the Iranian economy has shown that inflation may have a dual influence on income inequality depending on the composition of the consumption basket and the relative price changes affecting different commodity groups [2]. Rising prices can therefore increase demands for public support, subsidies, social services, compensation programs, and targeted expenditure precisely when the real value of government resources is declining. Inflation and unemployment can also alter purchasing power and influence priorities in the allocation of financial resources, requiring policymakers and managers to reconsider which programs should receive protection, expansion, or retrenchment [10]. These conditions intensify the strategic importance of budgeting systems capable of linking financial allocations to clearly defined social and organizational outcomes.

The effects of inflation extend beyond the public budget to the operational systems of organizations. Inventory planning, procurement, production scheduling, pricing decisions, working-capital requirements, and payment arrangements are all sensitive to changes in the price level. Models of inventory management under inflation demonstrate that delayed payments, changing demand, product deterioration, customer returns, and price-dependent purchasing behavior can substantially alter optimal operational decisions [11]. Similarly, research on pull-based production systems has shown that inflation can influence inventory levels, replenishment behavior, operating costs, and production efficiency, particularly when price instability affects the timing and quantity of resource acquisition [12]. These operational consequences are directly relevant to public organizations because performance-based budgets often rely on assumptions concerning input costs, service volumes, standard costs, and unit prices. When those assumptions are destabilized by inflation, the connection between expenditure and performance becomes more difficult to measure.

Inflation may also affect organizational and sectoral performance through its interaction with broader economic conditions. In emerging-market economies, inflation is related to economic growth and external-debt dynamics, with the nature of these relationships varying according to institutional strength, macroeconomic policy, and structural characteristics [13]. Threshold analysis further suggests that the relationship among inflation, manufacturing value added, and economic growth may be nonlinear, meaning that moderate and high inflation may have different implications for production and development [14]. Such evidence indicates that inflation does not exert a uniform effect across all economic environments. Instead, its consequences depend on the capacity of institutions to adapt, maintain fiscal discipline, protect productive activity, and preserve the quality of financial decision-making.

At the organizational level, inflation can influence profitability, risk exposure, and managerial behavior. Evidence from banking systems in ASEAN countries indicates that inflation operates alongside corruption,

economic freedom, governmental conditions, and economic growth in shaping financial performance [15]. Although banking institutions differ from public agencies, the finding illustrates that inflation interacts with institutional and governance conditions rather than acting in isolation. For public organizations, the severity of inflation's consequences may similarly depend on the quality of internal governance, managerial competence, accountability mechanisms, information systems, and the flexibility of financial procedures. Organizations with stronger adaptive capacity may be better able to revise standards, reprioritize expenditures, and interpret inflation-related variances, whereas organizations with rigid or weak control systems may experience greater deterioration in budgetary efficiency.

In this context, performance-based budgeting has gained importance as a mechanism for improving the quality of public financial management. Unlike traditional line-item budgeting, which emphasizes expenditure categories and compliance with authorized inputs, performance-based budgeting seeks to connect financial resources with programs, activities, outputs, and outcomes. Its central premise is that budget decisions should be informed not only by how much money is spent but also by what results are achieved. Contemporary perspectives describe performance-based budgeting as a system that can strengthen financial decision-making by integrating performance information into resource allocation, program evaluation, and managerial accountability [16]. This approach is expected to improve transparency, clarify organizational objectives, facilitate comparison among programs, and encourage the more efficient use of public resources.

The successful implementation of performance-based budgeting, however, depends on several organizational and institutional conditions. These include reliable cost information, clearly defined objectives, measurable performance indicators, adequate accounting systems, managerial commitment, trained personnel, interdepartmental coordination, and the availability of timely data. A model developed for the Ministry of Cultural Heritage, Tourism and Handicrafts in Iran emphasized that effective implementation requires a combination of structural, technical, managerial, and environmental conditions [17]. Similarly, research in project-oriented organizations within Iran's housing sector has shown that intra-organizational factors significantly influence the quality of performance-based budgeting implementation [18]. These findings indicate that formal adoption alone does not guarantee successful implementation; the quality of the system depends on whether organizations possess the capacities necessary to translate financial allocations into measurable performance commitments.

The relationship between performance-based budgeting and accountability is particularly significant. Because this budgeting model links resources to results, it can provide a clearer basis for evaluating whether managers have used public funds effectively and whether organizational units have achieved their stated objectives. Accountability has therefore been identified as a central component in the effectiveness of performance-based budgeting [19]. A proposed performance-based budgeting model has also demonstrated that the quality of budgeting practices can influence performance accountability by clarifying responsibilities, strengthening reporting relationships, and improving the evaluation of organizational outcomes [20]. Yet inflation may weaken this accountability function when performance shortfalls arise not only from managerial inefficiency but also from unexpected increases in input prices and the erosion of the real value of allocated resources.

The implementation of performance-based budgeting is also closely associated with the quality of accounting systems. Accrual accounting can support the identification of costs, obligations, assets, and resource consumption more comprehensively than cash-based systems, thereby strengthening the informational basis of performance measurement. Evidence from public organizations in Iraq suggests that the implementation of performance-based budgeting and accrual accounting can improve the structure and usefulness of public financial information,

although institutional and technical barriers may limit their effectiveness [21]. Performance-based budgeting has also been linked to improvements in the quality of higher education by directing resources toward measurable institutional objectives and encouraging the evaluation of outcomes rather than merely expenditures [22]. These findings reinforce the view that the value of performance budgeting lies in its capacity to convert financial data into managerial information about effectiveness, efficiency, and service quality.

Within Iranian executive agencies, operational budgeting and performance control are increasingly viewed as interdependent components of public management. Balanced evaluation approaches have been used to connect budgeting with financial and nonfinancial performance indicators, thereby enabling organizations to assess whether allocated resources contribute to strategic and operational objectives [23]. Such systems are intended to improve planning, monitoring, responsibility accounting, and corrective action. However, their effectiveness depends on the stability and comparability of the standards against which actual performance is evaluated. When inflation changes the cost of inputs during the budget period, deviations between planned and actual expenditures may no longer provide an accurate indication of managerial efficiency. A negative budget variance may reflect price escalation rather than excessive consumption, while apparent cost efficiency may result from delayed procurement, reduced service quality, or the postponement of necessary activities.

Managerial controls refer to the procedures, information systems, performance measures, and decision mechanisms through which managers ensure that organizational activities remain aligned with approved plans and objectives. They include budgeting, expenditure authorization, variance analysis, internal reporting, responsibility accounting, cost control, risk assessment, performance evaluation, and corrective action. In a stable economic environment, these controls allow managers to compare actual results with predetermined standards and identify the causes of deviations. In an inflationary environment, however, nominal comparisons may become misleading unless financial information is adjusted for changes in purchasing power and input prices. The same nominal expenditure may represent a lower level of real activity, while an increase in expenditure may simply preserve an existing level of service. Therefore, inflation can reduce the informational value of budgetary controls and impair the fairness of managerial performance evaluation.

The effect of inflation on managerial controls is also connected to the timing of information. Performance-based budgeting and managerial control systems generally operate through periodic reports, approved standards, and annual or medium-term plans. When prices change rapidly, information may become outdated before it reaches decision-makers. Standard costs may require frequent revision, procurement ceilings may no longer correspond to market prices, and performance targets may need adjustment to reflect resource constraints. Managers may respond by requesting supplementary appropriations, transferring funds among expenditure categories, reducing output targets, delaying projects, or modifying service-delivery methods. However, the legal and administrative procedures governing public organizations may restrict such flexibility, creating a gap between formal financial controls and operational realities.

Inflation can further weaken managerial control by increasing uncertainty and reducing the ability to attribute responsibility. Effective control requires managers to distinguish controllable from uncontrollable factors. Yet when inflation affects wages, materials, utilities, transportation, contracts, and capital costs simultaneously, it becomes difficult to determine whether a budget variance resulted from poor management, inefficient resource use, or external price changes. This attribution problem may reduce the motivational and accountability value of performance evaluation. Employees and managers may perceive budget targets as unrealistic, while evaluators

may rely on nominal indicators that fail to capture the real conditions under which performance occurred. As a result, the control system may become more compliance-oriented and less useful for organizational learning.

Another concern is that inflation may distort resource-allocation priorities. As the real value of budgets declines, managers may protect mandatory expenditures such as salaries, utilities, and contractual obligations while reducing discretionary activities, maintenance, training, innovation, and long-term investment. Such decisions may preserve short-term continuity but weaken future organizational capacity. Inflation may also encourage short-term purchasing, stockpiling, accelerated spending, or the premature commitment of funds to avoid expected price increases. Although such behavior may appear rational from the perspective of individual units, it can reduce overall budgetary efficiency and complicate expenditure control. The importance of these effects is heightened in organizations whose budgets are project-based or whose outputs depend on complex procurement and contracting processes.

Despite the extensive literature on the macroeconomic causes and consequences of inflation in Iran, fewer studies have directly examined how inflation influences the internal functioning of performance-based budgeting and managerial control systems. Existing research has provided substantial evidence concerning monetary expansion, budget deficits, oil shocks, exchange-rate fluctuations, purchasing power, income distribution, and economic growth. Other studies have focused on the prerequisites, implementation models, accountability effects, and organizational determinants of performance-based budgeting. However, these two bodies of literature have often developed separately. Macroeconomic studies generally analyze inflation at the national level, whereas budgeting studies frequently assume that the monetary values used in planning and evaluation remain sufficiently stable for meaningful comparison.

This separation creates an important theoretical and practical gap. Performance-based budgeting depends on the validity of cost estimates, the stability of performance standards, and the comparability of planned and actual values. Managerial controls similarly depend on timely, accurate, and interpretable information. Inflation directly challenges each of these conditions. It may weaken cost accuracy, distort variance analysis, reduce budget credibility, complicate accountability, and limit the effectiveness of corrective action. Understanding these effects is essential for designing financial systems that remain useful under conditions of price instability. Such knowledge can also help policymakers determine whether budgets should include inflation-adjustment mechanisms, flexible appropriations, revised performance indicators, contingency reserves, or more frequent reporting and reforecasting procedures.

The issue is especially significant in Tehran, where a large concentration of governmental institutions, municipalities, state-affiliated organizations, executive agencies, and public-sector professionals are responsible for implementing budgets under complex administrative and economic conditions. Examining the perceptions of managers, budget experts, accountants, auditors, and administrative specialists can provide direct evidence regarding how inflation affects the operational reliability of performance-based budgeting and the effectiveness of managerial controls. Their experience can clarify whether inflation mainly disrupts cost estimation, resource allocation, performance evaluation, financial reporting, variance interpretation, or corrective decision-making. It can also reveal whether stronger budgeting systems are associated with more effective managerial controls despite inflationary pressures.

Accordingly, the aim of this study was to examine the impact of inflationary pressure on the efficiency of performance-based budgeting and the effectiveness of managerial controls in governmental and public organizations in Tehran.

2. Methodology

This study employed a quantitative, applied, and cross-sectional research design to examine the impact of inflation on the efficiency of performance-based budgeting and managerial controls. From a methodological perspective, the research was descriptive-correlational because the variables were measured without experimental manipulation, and the relationships among inflationary pressures, performance-based budgeting efficiency, and managerial control effectiveness were statistically evaluated. The study population consisted of managers, financial officers, budget experts, accountants, internal auditors, and administrative specialists employed in governmental organizations, public institutions, municipalities, and state-affiliated organizations located in Tehran, Iran. These individuals were selected because their professional responsibilities involved preparing, implementing, monitoring, or evaluating organizational budgets and managerial control systems, making them sufficiently familiar with the operational consequences of inflation. A total of 384 participants were included in the final sample. This sample size was considered adequate for a large or unspecified population based on the Cochran sample-size formula at a 95% confidence level and a 5% margin of error. Participants were recruited using a multistage sampling procedure. Initially, governmental and public organizations in Tehran were classified according to their administrative and functional domains. Several organizations were then selected from each category, after which eligible respondents were recruited through proportionate stratified sampling based on their occupational positions. The inclusion criteria were employment in a financial, budgeting, accounting, auditing, managerial, or administrative position; at least three years of relevant professional experience; direct familiarity with organizational budgeting or managerial control procedures; and willingness to participate in the study. Individuals who returned substantially incomplete questionnaires or lacked direct experience with budgetary and control processes were excluded from the analysis. Participation was voluntary, and respondents were informed that their information would remain confidential and would be used exclusively for research purposes. No personally identifying information was recorded, and informed consent was obtained before questionnaire distribution.

Data were collected using a structured questionnaire composed of demographic questions and three principal measurement sections. The demographic section gathered information on participants' age, gender, educational qualification, occupational position, organizational sector, and years of professional experience. The first measurement section assessed perceived inflationary pressure on organizational financial activities. This section evaluated the extent to which increases in the general price level, instability in the prices of goods and services, rising personnel and procurement costs, exchange-rate fluctuations, reductions in the real value of allocated funds, and differences between approved and actual expenditures affected organizational budgeting processes. The inflation construct was measured through items addressing budget erosion, cost unpredictability, delayed resource allocation, purchasing-power reduction, and the frequency of required budget revisions. Higher scores indicated greater perceived exposure to inflationary pressures and stronger disruptive effects of inflation on organizational financial planning.

The second section measured the efficiency of performance-based budgeting. The items in this section examined the extent to which organizational budgets were connected to measurable objectives, operational activities, expected outputs, service-delivery indicators, and organizational performance. The questionnaire assessed the accuracy of cost estimation, clarity of performance indicators, alignment between financial resources and operational priorities, flexibility in reallocating resources, reliability of budget forecasts, comparability of planned and actual performance, and the usefulness of budget information for decision-making. It also measured whether

inflation weakened the relationship between allocated resources and expected outputs, reduced the accuracy of unit-cost calculations, or limited the organization's ability to evaluate performance objectively. Higher scores represented greater efficiency, transparency, adaptability, and result orientation in the performance-based budgeting system.

The third section assessed the effectiveness of managerial controls. This section included items related to budgetary control, cost monitoring, variance analysis, internal reporting, responsibility accounting, performance evaluation, corrective action, risk management, and managerial oversight. Particular attention was given to the capacity of managerial control systems to detect inflation-related deviations, distinguish operational inefficiency from price-related cost increases, update financial standards, revise organizational targets, and provide timely information to decision-makers. Respondents evaluated the adequacy of formal control procedures, the timeliness and accuracy of financial reports, the effectiveness of expenditure monitoring, the flexibility of control standards under unstable economic conditions, and the ability of managers to take corrective action in response to inflation-induced budget deviations. Higher scores indicated stronger and more adaptive managerial control mechanisms.

All substantive questionnaire items were rated on a five-point Likert scale ranging from 1, representing strongly disagree, to 5, representing strongly agree. The initial items were developed through a comprehensive review of the literature on inflation, public-sector budgeting, performance-based budgeting, management accounting, and organizational control. The questionnaire was subsequently reviewed by a panel of university faculty members specializing in accounting, public administration, financial management, and economics, as well as experienced budgeting professionals. Their comments were used to improve the clarity, relevance, comprehensiveness, and technical accuracy of the items. Content validity was assessed by evaluating whether each item adequately represented the intended construct, and ambiguous or repetitive items were revised or removed. A pilot study was conducted with 30 eligible professionals who were not included in the final sample. The pilot results confirmed that the items were understandable and that the questionnaire could be completed within an appropriate period. Internal consistency reliability was evaluated using Cronbach's alpha coefficients. The coefficients for the inflationary pressure, performance-based budgeting efficiency, and managerial control effectiveness scales all exceeded the acceptable threshold of 0.70, indicating satisfactory reliability. Construct validity was further examined through factor analysis to determine whether the observed items appropriately represented their corresponding latent variables.

The collected data were analyzed using descriptive and inferential statistical procedures. Before conducting the main analyses, the questionnaires were screened for completeness, response patterns, and data-entry accuracy. Questionnaires with substantial missing information were excluded, while a limited number of missing responses were handled using appropriate statistical procedures after confirming that they occurred randomly. Descriptive statistics, including frequency, percentage, mean, standard deviation, minimum, and maximum values, were used to summarize the demographic characteristics of the participants and the distributions of the principal research variables. The normality of the data was assessed by examining skewness and kurtosis values and applying the Kolmogorov–Smirnov test. Potential multicollinearity was evaluated using tolerance values and variance inflation factors, and the independence and homoscedasticity of residuals were also examined before regression analysis.

Pearson's correlation coefficient was used to determine the direction and strength of the relationships among inflationary pressure, performance-based budgeting efficiency, and managerial control effectiveness. Multiple regression analysis was subsequently conducted to estimate the predictive effect of inflation on the efficiency of performance-based budgeting and managerial controls while accounting for relevant demographic and

occupational characteristics. Inflationary pressure was entered as the principal independent variable, whereas performance-based budgeting efficiency and managerial control effectiveness were treated as dependent variables in separate regression models. Standardized regression coefficients, unstandardized coefficients, standard errors, t-values, confidence intervals, coefficients of determination, and adjusted coefficients of determination were calculated to evaluate the magnitude and explanatory power of the relationships.

Structural equation modeling was also employed to evaluate the overall conceptual model and examine the simultaneous relationships among the study variables. The measurement model was assessed through confirmatory factor analysis, and factor loadings were examined to determine the contribution of each item to its respective construct. Convergent validity was evaluated using average variance extracted and composite reliability, while discriminant validity was assessed by comparing the shared variance among constructs with the variance explained by their indicators. The structural model was then tested to determine the direct effect of inflationary pressure on performance-based budgeting efficiency and managerial control effectiveness. Model adequacy was evaluated using commonly accepted goodness-of-fit indices, including the chi-square-to-degrees-of-freedom ratio, comparative fit index, goodness-of-fit index, adjusted goodness-of-fit index, Tucker–Lewis index, root mean square error of approximation, and standardized root mean square residual. Statistical analyses were performed using SPSS and AMOS software, and the significance level was set at 0.05 for all statistical tests. Negative and statistically significant path coefficients were interpreted as evidence that greater inflationary pressure reduced the efficiency of performance-based budgeting or weakened the effectiveness of managerial controls.

3. Findings and Results

A total of 384 completed questionnaires were included in the final statistical analysis. Of the participants, 236 individuals (61.5%) were men and 148 individuals (38.5%) were women. The mean age of the respondents was 41.26 years, with a standard deviation of 7.84 years, and their ages ranged from 27 to 59 years. Regarding educational attainment, 62 participants (16.1%) held a bachelor's degree, 241 participants (62.8%) held a master's degree, and 81 participants (21.1%) held a doctoral degree or an equivalent professional qualification. In terms of occupational position, 89 respondents (23.2%) were managers or department heads, 118 respondents (30.7%) were budget and financial experts, 76 respondents (19.8%) were accountants, 43 respondents (11.2%) were internal auditors, and 58 respondents (15.1%) were administrative or planning specialists whose responsibilities were directly related to budgeting and managerial control processes. The respondents had an average of 13.47 years of professional experience, with a standard deviation of 6.29 years. Of the total sample, 124 participants (32.3%) had between 3 and 10 years of experience, 169 participants (44.0%) had between 11 and 20 years of experience, and 91 participants (23.7%) had more than 20 years of relevant professional experience. Furthermore, 201 respondents (52.3%) were employed in governmental organizations, 103 respondents (26.8%) worked in municipalities and municipal-affiliated institutions, and 80 respondents (20.8%) were employed in state-owned or publicly affiliated organizations in Tehran. These demographic characteristics indicated that the sample consisted predominantly of highly educated and professionally experienced respondents with direct knowledge of budgeting, financial reporting, expenditure monitoring, and managerial control systems.

Table 1. Descriptive Statistics, Reliability Coefficients, and Distributional Characteristics of the Study Variables

Variable	Number of Items	Possible Range	Observed Range	Mean	Standard Deviation	Skewness	Kurtosis	Cronbach's Alpha

Inflationary pressure	12	12–60	21–60	47.18	6.72	-0.61	0.24	0.91
Performance-based budgeting efficiency	15	15–75	24–72	43.36	8.41	0.18	-0.47	0.89
Managerial control effectiveness	14	14–70	22–68	42.91	7.96	0.12	-0.39	0.90

As presented in Table 1, the mean score for inflationary pressure was 47.18 out of a possible maximum score of 60, indicating that respondents generally perceived inflation as a substantial and persistent source of disruption to organizational financial planning and budget execution. The relatively high mean score showed that increases in procurement costs, personnel expenditures, service prices, exchange-rate-related costs, and the erosion of the real value of approved appropriations were commonly experienced across the participating organizations. The standard deviation of 6.72 indicated a moderate level of variation in respondents' perceptions, suggesting that although inflationary pressure was broadly recognized, its operational severity differed among organizations and occupational groups. The mean score for performance-based budgeting efficiency was 43.36 out of 75, which was only moderately above the theoretical midpoint of the scale. This result suggested that performance-based budgeting mechanisms were present in the investigated organizations but were not functioning at an optimal level under inflationary conditions. In particular, the score reflected limitations in the accuracy of cost estimation, the stability of performance targets, the comparability of planned and realized outputs, and the ability to preserve the connection between financial allocations and organizational results. Managerial control effectiveness had a mean score of 42.91 out of 70, similarly indicating a moderate level of effectiveness. This finding implied that organizations had established reporting, monitoring, variance-analysis, and corrective-action procedures, but these mechanisms were not fully capable of responding to rapid and unpredictable changes in prices and operating costs. The skewness and kurtosis coefficients for all variables were within the commonly accepted range of -2 to +2, supporting the approximate normality of the variable distributions. In addition, Cronbach's alpha coefficients ranged from 0.89 to 0.91, demonstrating a high level of internal consistency reliability for all three measurement scales.

Table 2. Pearson Correlations among Inflationary Pressure, Performance-Based Budgeting Efficiency, and Managerial Control Effectiveness

Variable	1	2	3
1. Inflationary pressure	1.00		
2. Performance-based budgeting efficiency	-0.64**	1.00	
3. Managerial control effectiveness	-0.58**	0.69**	1.00

The correlation results reported in Table 2 demonstrated that inflationary pressure was significantly and negatively associated with both principal dependent variables. Inflationary pressure had a strong negative correlation with performance-based budgeting efficiency, $r = -0.64$, $p < 0.01$. This result indicated that higher levels of perceived inflationary pressure were accompanied by lower levels of efficiency in linking organizational expenditures to objectives, activities, outputs, and performance indicators. In practical terms, as inflation intensified, the reliability of predetermined cost standards, unit-cost estimates, expenditure forecasts, and output targets declined. Inflationary pressure was also significantly and negatively related to managerial control effectiveness, $r = -0.58$, $p < 0.01$. This association suggested that increases in price instability and the real-value erosion of financial resources weakened organizations' ability to interpret expenditure deviations, compare actual results with planned standards, and implement timely corrective actions. By contrast, performance-based

budgeting efficiency was positively and strongly correlated with managerial control effectiveness, $r = 0.69$, $p < 0.01$. This finding indicated that organizations with more accurate, transparent, adaptable, and outcome-oriented budgeting systems also tended to have more effective financial monitoring, responsibility accounting, reporting, variance analysis, and managerial oversight mechanisms. The magnitude of the coefficients further showed that the relationships were substantively meaningful and not merely statistically significant. Nevertheless, none of the correlations exceeded 0.80, indicating that the constructs were related but empirically distinct and that severe multicollinearity was unlikely to affect the subsequent regression and structural analyses.

Table 3. Multiple Regression Analysis Predicting Performance-Based Budgeting Efficiency

Predictor	B	Standard Error	β	t	p	95% Confidence Interval for B	Tolerance	VIF
Constant	77.46	3.54	—	21.88	<0.001	70.50 to 84.42	—	—
Inflationary pressure	-0.78	0.05	-0.62	-15.71	<0.001	-0.88 to -0.68	0.91	1.10
Professional experience	0.11	0.05	0.08	2.17	0.031	0.01 to 0.21	0.89	1.12
Managerial position	1.28	0.61	0.08	2.10	0.036	0.08 to 2.48	0.94	1.06
Educational level	0.74	0.49	0.05	1.51	0.132	-0.22 to 1.70	0.96	1.04
Organizational sector	-0.46	0.37	-0.04	-1.24	0.216	-1.19 to 0.27	0.93	1.08

Model statistics: $R = 0.66$, $R^2 = 0.44$, adjusted $R^2 = 0.43$, $F(5, 378) = 58.87$, $p < 0.001$, Durbin–Watson = 1.93.

Table 3 presents the results of the multiple regression analysis conducted to determine whether inflationary pressure predicted performance-based budgeting efficiency after accounting for professional experience, occupational position, educational level, and organizational sector. The overall regression model was statistically significant, $F(5, 378) = 58.87$, $p < 0.001$, and explained 44% of the variance in performance-based budgeting efficiency. The adjusted coefficient of determination was 0.43, indicating that the explanatory power of the model remained substantial after adjustment for the number of predictors. Inflationary pressure emerged as the strongest predictor of performance-based budgeting efficiency, with an unstandardized coefficient of $B = -0.78$ and a standardized coefficient of $\beta = -0.62$, $t = -15.71$, $p < 0.001$. This coefficient indicated that for every one-unit increase in perceived inflationary pressure, the performance-based budgeting efficiency score decreased by approximately 0.78 units when the effects of the other variables were held constant. The 95% confidence interval for this coefficient ranged from -0.88 to -0.68 and did not include zero, confirming the precision and statistical significance of the negative effect. Professional experience had a small but statistically significant positive effect, $B = 0.11$, $\beta = 0.08$, $p = 0.031$, suggesting that more experienced respondents perceived slightly greater budgeting efficiency, possibly because experienced professionals were better able to adjust estimates, revise allocations, and interpret budget deviations under unstable economic conditions. Holding a managerial position was also associated with a modest increase in perceived budgeting efficiency, $B = 1.28$, $\beta = 0.08$, $p = 0.036$. Educational level and organizational sector did not make statistically significant independent contributions to the model. Tolerance values ranged from 0.89 to 0.96, and variance inflation factor values ranged from 1.04 to 1.12, demonstrating the absence of problematic multicollinearity. The Durbin–Watson statistic of 1.93 further indicated that the residuals were independent. Overall, the results confirmed that inflationary pressure was a substantial negative determinant of performance-based budgeting efficiency, even after demographic and occupational characteristics were statistically controlled.

Table 4. Multiple Regression Analysis Predicting Managerial Control Effectiveness

Predictor	B	Standard Error	β	t	p	95% Confidence Interval for B	Tolerance	VIF
Constant	68.92	3.55	—	19.41	<0.001	61.94 to 75.90	—	—
Inflationary pressure	-0.61	0.05	-0.52	-12.19	<0.001	-0.71 to -0.51	0.91	1.10
Professional experience	0.15	0.05	0.12	3.01	0.003	0.05 to 0.25	0.89	1.12

Managerial position	1.73	0.61	0.12	2.84	0.005	0.53 to 2.93	0.94	1.06
Educational level	0.91	0.49	0.07	1.86	0.064	-0.05 to 1.87	0.96	1.04
Organizational sector	-0.32	0.37	-0.03	-0.86	0.391	-1.05 to 0.41	0.93	1.08

Model statistics: $R = 0.61$, $R^2 = 0.37$, adjusted $R^2 = 0.36$, $F(5, 378) = 44.16$, $p < 0.001$, Durbin–Watson = 2.04.

As shown in Table 4, the regression model predicting managerial control effectiveness was statistically significant, $F(5, 378) = 44.16$, $p < 0.001$. The predictor variables jointly explained 37% of the variance in managerial control effectiveness, while the adjusted R^2 value of 0.36 indicated that the model retained considerable explanatory power after correction for the number of predictors. Inflationary pressure had a significant negative effect on managerial control effectiveness, B = -0.61, $\beta = -0.52$, t = -12.19, $p < 0.001$. Accordingly, each one-unit increase in inflationary pressure was associated with an estimated 0.61-unit reduction in managerial control effectiveness after controlling for the remaining variables. The standardized coefficient showed that inflationary pressure was the most influential predictor in the model. This finding indicated that the effectiveness of budgetary control, cost monitoring, expenditure authorization, variance analysis, performance evaluation, and corrective intervention diminished as inflation-related uncertainty increased. Under such conditions, deviations between planned and actual expenditures could not be attributed solely to managerial performance because a substantial proportion of those deviations arose from changes in market prices and the declining purchasing power of organizational budgets. Professional experience had a statistically significant positive association with managerial control effectiveness, B = 0.15, $\beta = 0.12$, $p = 0.003$, indicating that more experienced professionals may have been more capable of revising control standards, interpreting inflation-adjusted variances, and responding to emerging financial risks. Managerial position was also a significant positive predictor, B = 1.73, $\beta = 0.12$, $p = 0.005$, suggesting that managers perceived greater control effectiveness than nonmanagerial specialists, possibly because of their broader access to organizational information and their formal authority to initiate corrective measures. Educational level approached but did not reach the conventional level of statistical significance, $p = 0.064$, and organizational sector was not statistically significant, $p = 0.391$. The tolerance and variance inflation factor values confirmed that multicollinearity was not a concern, and the Durbin–Watson statistic of 2.04 supported the independence of the regression residuals. Taken together, the results demonstrated that inflationary pressure substantially weakened managerial control systems, although professional experience and managerial authority provided limited protective effects.

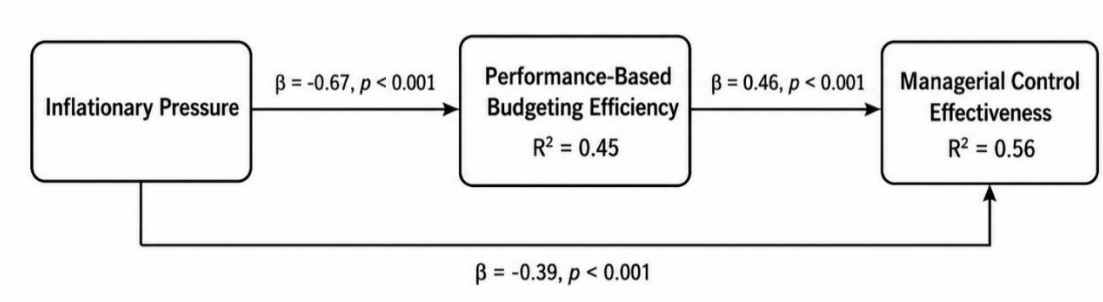

Figure 1. Standardized Structural Model

The structural equation model was examined to determine the simultaneous effects of inflationary pressure on performance-based budgeting efficiency and managerial control effectiveness and to evaluate the relationship between the two organizational outcome variables. The measurement model demonstrated acceptable convergent validity, as all standardized factor loadings ranged from 0.63 to 0.87 and were statistically significant at $p < 0.001$.

Composite reliability coefficients were 0.92 for inflationary pressure, 0.90 for performance-based budgeting efficiency, and 0.91 for managerial control effectiveness. The average variance extracted values were 0.58, 0.53, and 0.55, respectively, exceeding the recommended minimum value of 0.50 and confirming that each latent construct explained an adequate proportion of the variance in its observed indicators. The structural model also demonstrated an acceptable fit to the observed data, $\chi^2 = 462.71$, df = 214, $\chi^2/df = 2.16$, comparative fit index = 0.94, Tucker–Lewis index = 0.93, goodness-of-fit index = 0.91, adjusted goodness-of-fit index = 0.89, root mean square error of approximation = 0.055, and standardized root mean square residual = 0.047. Inflationary pressure had a statistically significant direct negative effect on performance-based budgeting efficiency, $\beta = -0.67$, standard error = 0.06, critical ratio = -11.82, $p < 0.001$. Inflationary pressure also exerted a significant direct negative effect on managerial control effectiveness, $\beta = -0.39$, standard error = 0.07, critical ratio = -6.24, $p < 0.001$. In addition, performance-based budgeting efficiency had a positive direct effect on managerial control effectiveness, $\beta = 0.46$, standard error = 0.06, critical ratio = 7.71, $p < 0.001$. The indirect effect of inflationary pressure on managerial control effectiveness through performance-based budgeting efficiency was -0.31. Bootstrap analysis based on 5,000 resamples showed that this indirect effect was statistically significant, with a 95% confidence interval ranging from -0.39 to -0.23. The total effect of inflationary pressure on managerial control effectiveness was therefore -0.70, consisting of both the direct effect and the indirect effect transmitted through reduced budgeting efficiency. The model explained 45% of the variance in performance-based budgeting efficiency and 56% of the variance in managerial control effectiveness. These results indicated that inflation weakened managerial controls not only by directly reducing the reliability of financial standards and monitoring procedures but also indirectly by impairing the quality and functionality of the performance-based budgeting system on which managerial control decisions depended.

4. Discussion and Conclusion

The present study examined the impact of inflationary pressure on the efficiency of performance-based budgeting and the effectiveness of managerial controls in governmental and public organizations in Tehran. The findings demonstrated that inflationary pressure was perceived at a relatively high level, whereas the efficiency of performance-based budgeting and the effectiveness of managerial controls were both evaluated at moderate levels. Correlation analysis showed that inflationary pressure was strongly and negatively associated with performance-based budgeting efficiency and moderately to strongly and negatively associated with managerial control effectiveness. Performance-based budgeting efficiency was also positively associated with managerial control effectiveness. The regression findings further indicated that inflationary pressure was the strongest negative predictor of both performance-based budgeting efficiency and managerial control effectiveness, even after professional experience, managerial position, educational level, and organizational sector were controlled. Finally, the structural equation model showed that inflationary pressure affected managerial control effectiveness through both a direct negative pathway and an indirect pathway mediated by reduced performance-based budgeting efficiency. These results suggest that inflation is not merely a macroeconomic condition external to organizational administration; rather, it directly affects the quality of internal budgeting, performance measurement, financial monitoring, and managerial decision-making.

The first major finding was that inflationary pressure had a significant negative effect on performance-based budgeting efficiency. This result indicates that as inflation increased, the investigated organizations experienced greater difficulty in maintaining accurate cost estimates, linking expenditures to measurable outputs, preserving

the real value of appropriations, and comparing planned performance with realized outcomes. Performance-based budgeting requires relatively stable and reliable financial assumptions because its logic depends on connecting resources to programs, activities, outputs, and results. When prices change rapidly, the financial values included in the approved budget lose their informational validity, and the relationship between nominal allocations and real operational capacity weakens. Thus, an organization may appear to have received adequate funding in nominal terms while being unable to purchase the quantity or quality of inputs required to attain its performance targets.

This finding is consistent with research emphasizing the close relationship between budget structure, monetary dynamics, and inflation in Iran. Falahi et al. showed that fiscal structure and monetary developments are closely connected to inflationary pressures in the Iranian economy, implying that weaknesses in fiscal planning can both contribute to and be affected by inflation [5]. The result also aligns with evidence that financing government budget deficits through central bank borrowing or bond issuance may produce inflationary consequences, particularly when fiscal expansion is not supported by stable revenue sources or productive growth [1]. In such circumstances, public organizations face a paradox: the budget is intended to guide resource allocation and performance, but the fiscal conditions surrounding the budget reduce the real value and operational credibility of the allocations it contains.

The negative effect of inflation on performance-based budgeting efficiency may also be explained by the instability of macroeconomic determinants in Iran. Monetary growth, liquidity expansion, exchange-rate fluctuations, oil-revenue shocks, and budget deficits can interact to create persistent and unpredictable price changes. Tayebnia and Taghimollaee demonstrated that monetary variables significantly influence inflation in Iran, supporting the view that inflation is deeply connected to macroeconomic policy and monetary expansion [3]. Mehrara and Ghabadzadeh similarly found that inflation in Iran is influenced by a combination of monetary, fiscal, structural, and external variables rather than by a single determinant [4]. This multidimensional instability makes annual budgeting particularly difficult because managers cannot easily predict the future prices of labor, materials, equipment, contracted services, transportation, energy, or imported inputs.

The findings are also supported by studies showing that oil-price and oil-income shocks affect inflation, growth, unemployment, and budget deficits in Iran [6, 7]. Because public revenues in Iran are directly or indirectly affected by oil-market developments, fluctuations in oil income can alter both the availability of financial resources and the government's monetary or fiscal response to revenue shortfalls. Niazimohseni et al. further showed that shocks arising from monetary policy and oil revenues influence inflation and economic growth, confirming that budget implementation takes place within a volatile economic environment [8]. Under such conditions, the financial assumptions underlying performance-based budgets may become obsolete during the fiscal year, necessitating frequent revisions and reducing the comparability of planned and actual performance.

Exchange-rate instability provides another explanation for the observed relationship. Pirpour and Samsami Mazra'e Akhound identified a reciprocal relationship between exchange-rate fluctuations and inflation deviations in Iran [9]. This relationship is particularly important for organizations whose budgets include imported goods, information technology, specialized equipment, foreign materials, or contracts linked to exchange-rate movements. When the national currency depreciates, the cost of these items can rise sharply, making approved budgets insufficient. As a result, organizational units may reduce output targets, postpone projects, replace higher-quality inputs with lower-cost alternatives, or request supplementary appropriations. These responses weaken the original relationship between expenditure and performance and reduce the validity of performance-based budgeting.

The second major finding was that inflationary pressure significantly reduced managerial control effectiveness. This result indicates that inflation weakened budgetary control, expenditure monitoring, variance analysis, responsibility accounting, financial reporting, and corrective decision-making. Managerial control systems depend on predetermined standards against which actual results are compared. However, under inflationary conditions, the meaning of deviations becomes ambiguous. An unfavorable expenditure variance may arise from price increases rather than excessive resource consumption, while a favorable variance may reflect delayed procurement, reduced service quality, or failure to implement planned activities. Therefore, nominal comparisons can generate misleading conclusions concerning managerial performance.

This result is compatible with the broader literature on performance control and operational budgeting. Namazi et al. emphasized the importance of integrating operational budgeting with balanced performance control in Iranian executive agencies [23]. Such integration requires financial and nonfinancial information that accurately represents organizational performance. When inflation distorts cost information, the control system may no longer distinguish operational inefficiency from external price shocks. Young similarly argued that performance-based budgeting improves financial decision-making only when performance information is reliable, timely, and meaningfully connected to resource use [16]. The present findings extend this argument by showing that inflation can directly undermine the informational conditions required for effective control.

The results also support the view that inflation affects organizational operations beyond its conventional macroeconomic consequences. Erozan and Erozan found that inflation influences the functioning of pull-based production systems by changing inventory behavior, replenishment decisions, and operating costs [12]. Chandramohan and Ramasamy likewise showed that inflation, payment delays, price-dependent demand, product deterioration, and customer returns alter optimal inventory and operational decisions [11]. Although these studies focused on production and inventory systems, their implications are applicable to public organizations. Inflation changes the timing and cost of resource acquisition, complicates procurement planning, and reduces the usefulness of static cost standards. These effects make managerial controls less accurate and less responsive.

The positive relationship between performance-based budgeting efficiency and managerial control effectiveness was another important finding. Organizations with more efficient performance-based budgeting systems also reported stronger managerial controls. This relationship is theoretically plausible because performance-based budgeting provides the information required for control, including objectives, cost estimates, output indicators, performance standards, and responsibility assignments. When these elements are clearly defined, managers can more effectively monitor expenditures, analyze deviations, evaluate units, and initiate corrective action. Conversely, when budgeting is weak, managerial controls lack a reliable reference point.

This finding is consistent with evidence showing that performance-based budgeting strengthens accountability and improves performance evaluation. Haqparast et al. identified accountability as a central component of performance-based budgeting [19], while Tefang Saz et al. showed that a well-designed performance-based budgeting model can improve performance accountability [20]. These findings suggest that budgeting and control should not be treated as separate systems. Rather, they form an integrated management mechanism in which budget information provides standards for control, and control information provides feedback for future budgeting.

The result also corresponds with studies on the organizational prerequisites of performance-based budgeting. Zare Bidoki et al. emphasized that successful implementation depends on structural, managerial, technical, and environmental conditions [17]. Seyedi et al. similarly found that intra-organizational factors affect the quality of

performance-based budgeting implementation in project-oriented organizations [18]. The present study indicates that these internal conditions become even more important under inflationary pressure. Organizations with stronger information systems, trained financial personnel, flexible procedures, and clear performance indicators may be better able to adjust budgets and preserve control effectiveness despite economic instability.

The structural model further showed that performance-based budgeting efficiency partially mediated the relationship between inflationary pressure and managerial control effectiveness. This means that inflation weakened managerial controls both directly and indirectly by first reducing the efficiency of the budgeting system. The direct pathway can be explained by the effect of inflation on cost standards, reporting timeliness, procurement limits, and the interpretation of financial deviations. The indirect pathway reflects the dependence of managerial controls on budgeting quality. When inflation reduces the accuracy, comparability, and credibility of performance-based budgets, the controls built upon those budgets also become less reliable.

This mediating mechanism is consistent with the logic of public financial management. Performance-based budgeting translates strategic goals into financial and operational targets, while managerial control evaluates whether those targets are being achieved. If the budget is based on unstable prices or unrealistic cost estimates, the control system receives distorted benchmarks. Kashanipour et al. showed that performance-based budgeting and accrual accounting can improve the quality of public financial information when they are properly implemented [21]. Mohmmed Alkndlee also found that performance-based budgeting can improve organizational quality by directing resources toward measurable objectives [22]. However, the present findings suggest that these benefits may be reduced when inflation prevents the budgeting system from producing stable and meaningful performance benchmarks.

The results concerning professional experience and managerial position also deserve attention. More experienced participants reported slightly higher performance-based budgeting efficiency and managerial control effectiveness, while respondents holding managerial positions also evaluated both systems more positively. Experienced personnel may be better able to interpret inflation-related deviations, distinguish price effects from operational inefficiency, and revise estimates using professional judgment. Managers may also have greater authority to transfer resources, adjust priorities, request supplementary funding, or modify performance targets. Nevertheless, these effects were considerably smaller than the effect of inflationary pressure, indicating that individual experience and organizational authority can only partially compensate for severe economic instability.

The high perceived level of inflationary pressure is also consistent with studies examining its distributive and organizational consequences. Zarouki et al. showed that inflation affects income inequality differently across commodity groups and household consumption baskets [2]. Tajik Norouzi et al. similarly emphasized the influence of inflation and unemployment on purchasing power and financial resource-allocation priorities [10]. These findings indicate that inflation simultaneously increases demand for public services and reduces the real capacity of public budgets to meet those demands. Consequently, managers must allocate increasingly constrained resources among competing priorities, which can intensify budgetary inefficiency and weaken control.

The findings can also be interpreted in light of international evidence concerning inflation, growth, debt, and organizational performance. Yaşa and Şentürk showed that inflation interacts with economic growth and external-debt dynamics in emerging-market economies [13]. Aktas and Erdem found that the relationship between inflation, manufacturing value added, and growth may involve threshold effects, meaning that the economic consequences of inflation become more severe after certain levels are exceeded [14]. Styawati and Meylianingrum also demonstrated that inflation operates alongside governance and institutional conditions in affecting bank

profitability [15]. These studies support the interpretation that inflation's effects depend partly on institutional resilience. Organizations with more flexible financial systems, stronger governance, and better information may withstand moderate inflation, whereas persistent or high inflation can overwhelm conventional budgeting and control mechanisms.

Overall, the findings contribute to the literature by integrating macroeconomic and organizational perspectives. Previous studies have largely examined either the causes of inflation or the implementation of performance-based budgeting. The present study connects these areas by demonstrating that inflation materially affects the internal effectiveness of public-sector financial management. Inflation reduces the accuracy of budget estimates, weakens the relationship between resources and outputs, distorts variance analysis, complicates managerial accountability, and lowers the effectiveness of corrective controls. The results therefore show that performance-based budgeting cannot be evaluated independently of the economic environment in which it operates.

One limitation of the study was its cross-sectional design, which restricted causal interpretation because all variables were measured at one point in time. The study relied on self-reported perceptions, which may have been influenced by respondents' occupational roles, organizational experiences, or subjective assessments of inflation. Although the participants were selected from several governmental and public organizations in Tehran, the findings may not be fully generalizable to private organizations, smaller cities, rural institutions, or sectors with different financial structures. In addition, the study measured perceived inflationary pressure rather than directly matching organizational responses with official inflation indices, detailed budget records, or audited financial data. The use of a structured questionnaire also limited the ability to capture complex adaptive behaviors, informal controls, political constraints, and organization-specific budgeting procedures.

Future research should employ longitudinal designs to examine how changes in inflation over multiple fiscal years affect budget credibility, expenditure variance, performance achievement, and control effectiveness. Studies could combine survey data with official inflation rates, organizational budget documents, procurement records, and audited financial statements to strengthen objective measurement. Comparative research across provinces, organizational sectors, and countries with different inflation rates would help determine whether the observed relationships are context-specific or broadly applicable. Future studies could also test moderating variables such as organizational flexibility, digital accounting capacity, managerial competence, accrual-accounting maturity, decentralization, and the frequency of budget revision. Qualitative interviews with financial managers, budget specialists, and auditors could further clarify how organizations adapt their control systems under inflationary pressure.

In practice, governmental and public organizations should incorporate explicit inflation-adjustment mechanisms into performance-based budgeting and managerial control systems. Budget estimates should be updated periodically rather than remaining fixed throughout the fiscal year, and performance indicators should distinguish nominal expenditure changes from real changes in resource consumption and service output. Organizations should use flexible appropriations, contingency reserves, rolling forecasts, inflation-adjusted standard costs, and more frequent variance analysis. Financial information systems should enable managers to separate price variance from efficiency variance so that performance evaluations remain fair and meaningful. Training should also be provided to managers, accountants, auditors, and budget experts on inflation-sensitive planning, scenario analysis, and adaptive control. Finally, policymakers should reduce administrative barriers to justified budget revisions while preserving accountability and transparency.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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