

The Impact of Management Accounting Information on Resource Allocation Decisions in Government Social Expenditure Programmes: Evidence from Baghdad, Iraq

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Abstract: Government social spending programmes require an efficient allocation of scarce public resources for achieving objectives in health, education, social protection, housing, employment and poverty reduction. However, fragmented accounting reports, delays in information, weak linkages between budgets and programme performance, and limited use of cost and outcome indicators often undermine resource allocation decisions. The objective of this study was to examine the effect of management accounting information on the quality of resource allocation decisions in government social expenditure programmes in Baghdad, Iraq and to determine the relative effect of information relevance, accuracy, timeliness, comprehensiveness, accessibility, and cost and performance information use. It was a quantitative, explanatory and cross-sectional design. The data were collected by means of a structured questionnaire administered to officials involved in accounting, budgeting, planning, auditing, programme administration and resource allocation. We distributed 300 questionnaires and analysed 230 valid responses using descriptive statistics, hierarchical regression and partial least squares structural equation modelling. The results showed that management accounting information had a strong and positive effect on the quality of resource allocation decision ($\beta = 0.692$, $p < 0.001$) and accounted for 52.7% of the variance. The model of dimensions explained 61.4 % of variance. Use of cost and performance information had the biggest impact, followed by relevance and comprehensiveness. All studied dimensions showed statistically significant positive effects, with timeliness as the most needed area for institutional improvement.

Keywords: Management accounting information; Resource allocation decisions; Government social expenditure programmes; Public-sector accounting; Performance information; Cost information; Public financial management.

1. Introduction

Government social expenditure programmes are the primary tools used by public authorities to provide healthcare, education, social protection, housing assistance, employment support and poverty-reduction services. But fiscal pressures and competing social demands make it imperative that governments allocate scarce resources on the basis of sound evidence rather than on the basis of historical allocations or administrative discretion. Good public financial management and accounting practices can lead to human development and sustainability, and improve the capacity of governments to link spending decisions to policy objectives and measurable results [1]. Recent evidence from developing economies also suggests that strategic reallocation of resources can deliver large efficiency gains in health and education, especially where expenditure choices are underpinned by good governance and systematic performance evaluation [2].

But resource allocation in the public sector continues to be hampered by fragmented reporting, delayed financial information, weak links between budgets and programme performance and an over-emphasis on formal expenditure compliance. Recent research on New Public Financial Management suggests that scholarship has predominantly focused on financial reporting and performance measurement, while budgetary processes and the use of accounting information in resource allocation decisions have received relatively little attention [3]. One important limitation is



that accounting reports may be prepared by entities in developing public administrations without fully incorporating their information in the prioritisation of programmes and funding decisions.

The research gap is more conspicuous in Iraq. Recent Iraqi research has highlighted the need to move from traditional line-item budgeting to programme and performance budgeting to improve public financial management and resource allocation [4]. However, there is still limited empirical evidence on whether management accounting information – especially its relevance, accuracy, timeliness, comprehensiveness, accessibility and cost and performance orientation – does improve the decisions about the allocation of resources in government social expenditure programmes. In addition, there are few studies that have measured these dimensions together in the institutional environment of Baghdad which contains the most important federal ministries and central budgetary authorities.

The importance of this study lies in the fact that an inefficient allocation of social expenditure can reduce service coverage and weaken equity as well as limiting the social value generated from public funds. Good management accounting information can assist decision makers in understanding programme costs, variances in expenditure, output indicators, implementation risks, and expected outcomes, thereby promoting transparency, accountability, and evidence-based prioritisation. There is also international evidence that stronger public-sector accounting frameworks promote the efficiency of fiscal management when information is provided to policy making and administrative control [5].

The paper therefore contributes to the development and testing of a multidimensional model linking management accounting information to the quality of resource allocation decisions in government social expenditure programmes in Baghdad. It distinguishes the relative effects of six dimensions of information and makes a distinction between the production of accounting reports and their active use in allocation decisions. The study also offers Iraq and context specific evidence and provides practical implications for integrating accounting, budgeting and programme- performance systems.

2. Materials and Methods

2.1 Research Design

The present study used a quantitative, explanatory, cross-sectional research design to investigate the effect of management accounting information on resource allocation decisions in government social expenditure programmes in Baghdad, Iraq. The quantitative approach was chosen because the study aimed to quantify the relationships between clearly defined constructs and to assess whether variations in management accounting information accounted for variations in the quality of resource allocation decisions.

The explanatory design allowed the evaluation of the overall effect of management accounting information and the particular effects of its main dimensions. The dimensions were information relevance, accuracy, timeliness, completeness, accessibility and use of cost and performance information. Previous studies have revealed that management accounting systems enhance organisational decision-making through the provision of structured financial and non-financial information but the effectiveness of management accounting systems depended on the design, interpretation and use of such information by the decision-makers [6]. Modern management accounting practices have also been associated with better managerial decision making and organisational effectiveness [7].

The study adopted cross-sectional survey as it was interested in the prevailing accounting information practices and resource allocation procedures during the study period. Data were collected at one point in time, so results were interpreted as statistically significant predictive relationships rather than definitive proof of temporal causality.

2.2 Study Setting

The study was conducted in Baghdad, Iraq, and covered selected federal ministries, public agencies and government departments responsible for planning, financing, implementing or monitoring social spending programmes. Programmes covered include public health, education, social protection, poverty reduction, housing support, employment assistance and other government-funded social services.

Baghdad was selected as the seat of the main Iraqi ministries and central government institutions responsible for the preparation of the national budget, the authorisation of expenditure, financial control and the execution of programmes. The institution's scope included departments that dealt with budgeting and financial planning, management accounting and cost analysis, programme planning and evaluation, internal control and auditing, procurement and expenditure management, and senior administrative decision making.

The unit of analysis was the individual public-sector official who had direct knowledge of accounting information, budgeting procedures, or resource allocation decisions. During interpretation, the organisational context was taken into account because public-sector accounting systems were expected to deal with a range of issues, not just efficiency and financial control but also accountability, transparency, equity and broader public values [8].

2.3 Target Population

The target population was accountants, management accountants, budget officers, financial managers, planning officers, internal auditors, programme managers, department directors and other officials involved in decisions regarding resource allocation for social expenditure in government institutions in Baghdad.

The following criteria were used to select participants for the study: working in a government institution responsible for at least one social expenditure programme; directly involved in budgeting, accounting, planning, monitoring, auditing or resource allocation; having at least one year of professional experience in their current institution; and volunteering to participate in the study.

Employees were excluded from the sample if their tasks were purely clerical or operational, and thus they were not privy to accounting information or involved in decisions about the allocation of resources. We also excluded employees with less than one year of relevant professional experience because they were considered less likely to have the knowledge of the institution's accounting and budgetary procedures needed for our analysis.

2.4 Sampling Design and Sample Size

Sampling was done in multiple stages. In the first stage, purposive selection of government institutions was made on the basis of their direct responsibility for major social expenditure programmes. These institutions included Ministry of Finance, Ministry of Planning, Ministry of Labour and Social Affairs, Ministry of Health, Ministry of Education, Ministry of Construction, Housing and Municipalities and other relevant public agencies.

In the second stage, eligible respondents were classified into professional strata which include accounting and finance personnel, planning personnel, programme administrators, internal auditors and senior decision-makers. Where reliable lists of employees existed, proportionate stratified sampling was used to ensure that no single institution or occupational category dominated the final sample. In the absence of complete sampling frames because of administrative restrictions, purposive sampling was used to recruit respondents who met the inclusion criteria.

In total, 300 questionnaires were sent out and 242 were returned. After excluding questionnaires with much missing data, patterned responses, or non-compliance with the eligibility criteria, 230 valid questionnaires were included for statistical analysis, with a valid response rate of 76.7%.

The sample size was considered sufficient when the model complexity, expected effect size, significance level of 0.05, and statistical power of at least 0.80 were taken into account. A statistical power analysis was seen as a better alternative to simplified ratios of respondents to items, since the required sample size was dependent on the number of structural paths, the expected effect size, and the statistical tests applied [9]. Thus, the final sample was considered adequate for descriptive analysis, reliability testing, measurement model assessment and structural equation modelling.

2.5 Research Instrument

Data were collected using primary data through a structured self-administered questionnaire developed from recent literature on management accounting, accounting information systems, public-sector performance measurement and managerial decision-making [6–8,10]. The questionnaire was divided into three main sections.

Section A: Respondent and organizational characteristics

The first part collected demographic and professional data, such as gender, age group, educational qualification, professional specialisation, current job position, years of professional experience, employing institution, type of social programme, degree of involvement in budgeting and degree of involvement in resource allocation decisions.

These variables were used to describe the sample characteristics and to control for the variables in the statistical model where theoretically appropriate.

Section B: Management accounting information

The independent variable was management accounting information that was measured as a multi-dimensional construct with six dimensions.

The first dimension, relevance, measured the extent to which accounting information meets the needs of programme planning and resource allocation decisions. The second dimension, accuracy and reliability, evaluated the extent to which accounting information was free from material error and was perceived as credible by decision makers. The third dimension, timeliness, examined whether the accounting information was available before or during the resource allocation process.

The fourth dimension, comprehensiveness, looked at whether the information included both financial and non-financial data on costs, outputs, outcomes, programme risks and performance. The fifth dimension, accessibility and clarity, assessed the degree of accessibility to, and understanding of, accounting reports by authorised managers. The sixth dimension, use of cost and performance information, assessed the extent to which cost estimates, variance reports, budget performance indicators, programme outputs and outcome measures were actively considered in decisions on resource allocation.

Providing cost and performance information was consistent with evidence that well-designed public-sector performance measurement systems improved purposeful use of information by public managers [10]. It also mirrored the role of management accounting systems in structuring relevant information for complex managerial decisions [6].

Section C: Resource allocation decision quality

The dependent variable was the quality of the resource allocation decision. It was measured by items on the degree to which allocation decisions were economically efficient, consistent with programme objectives, evidence-based, transparent, timely, responsive to beneficiary needs, equitable across programmes and population groups, consistent with budget constraints, and able to improve expected social outcomes.

What mattered was not the absolute size of the government budget, but the quality of the allocation decisions. This distinction was made as a larger budget did not necessarily mean a more efficient, equitable or strategically sound use of public resources.

All substantive questionnaire items were measured using a five-point Likert scale ranging from 1 “strongly disagree” to 5 “strongly agree.” The five-point scale was chosen because it was understandable to respondents with different professional backgrounds and it provided sufficient response variation for multivariate statistical analysis.

2.6 Operational Model and Research Hypotheses

The direct effect of management accounting information on resource allocation decision quality was tested by the following structural model equation:

$$RAD = \beta_0 + \beta_1 MAI + \sum \beta_k CV_k + \varepsilon \quad (1)$$

where RAD was the quality of the resource allocation decisions, MAI was the management accounting information, CV_k was the selected control variables, β_0 was the intercept, β_1 and β_k were the estimated regression coefficient, and ε was the error term.

The main hypothesis was that management accounting information had a statistically significant positive effect on resource allocation decisions in government social expenditure programmes.

Other sub-hypotheses also investigated in the study included:

H1a: Management accounting information relevance positively affected resource allocation decisions.

H1b: The accuracy and reliability of management accounting information has a positive influence on resource allocation decisions.

H1c: Management accounting information timeliness has a positive effect on resource allocation decisions.

H1d: The extent of comprehensiveness of management accounting information had a positive effect on resource allocation decisions.

H1e: Availability and intelligibility of management accounting information had a positive influence on resource allocation decisions.

H1f: The use of cost and performance information positively impacted resource allocation decisions.

2.7 Questionnaire Translation and Cultural Adaptation

The questionnaire was developed in English and translated into Arabic as this was the main language of administration used by the respondents. A forward-backward translation procedure was used.

The questionnaire was translated from English into Arabic by a bilingual expert in accounting and public administration. The Arabic version was back translated into English by an independent bilingual specialist, who had not seen the original English version. The original and back-translated versions were then compared to identify differences in meaning, terminology or emphasis.

Special attention was paid to Iraqi public-sector terminology in the areas of budget allocation, programme expenditure, financial authorisation, programme performance and public accountability. Where a literal translation would probably result in ambiguity or low conceptual accuracy, items were semantically adapted rather than translated literally.

2.8 Content Validity and Pilot Study

The preliminary questionnaire was reviewed by a panel of seven experts in management accounting, public-sector accounting, public financial management, statistics and Iraqi government administration. The experts also evaluated all items of the questionnaire for relevance, clarity, technical accuracy, appropriateness to the Iraqi administrative context, duplication, and adequacy of construct coverage.

Items that looked unclear, repetitive or inappropriate to the context were modified or removed. The wording and order of the questionnaire were also improved based on the experts' comments.

Then, a pilot study was carried out with 35 public sector employees who met the main eligibility criteria but were excluded from the final sample. The pilot study examined the clarity of wording, estimated time of completion, response variability, and preliminary internal consistency of the scales.

The ambiguous expressions in the questionnaire were revised according to the feedback received from the pilot participants and the questionnaire items were aligned with the actual accounting, budgeting and programme management practices in the Iraqi government institutions.

2.9 Data Collection Procedure

Formal administrative approval was obtained from participating institutions before distribution of the questionnaire. Data were collected via printed questionnaires and electronic forms, depending on the institutional access and the preference of the respondents. Each potential participant received an information sheet outlining the purpose of the study, the voluntary nature of participation, the time commitment expected, and the measures taken to ensure confidentiality. The analytical data set did not include any personally identifying information. Questionnaires were only sent to officials directly involved in accounting, budgeting, programme planning, auditing, financial control or resource allocation. Follow-up reminders were sent out to increase the response rate, but without pressuring them to participate.

The returned questionnaires were screened, coded and entered into a secure database. Questionnaires were excluded if they had substantial missing data, identical answers to nearly all substantive items, inconsistent response patterns, an implausibly short completion time, or indications that the respondent did not meet the eligibility criteria.

2.10 Control of Common Method Bias

Common method bias was minimised by using procedural and statistical remedies as the independent and dependent variables were measured through the same questionnaire. Same-source and same-period measurement can artificially inflate or deflate observed relationships between variables if appropriate controls are not implemented [11,12].

Procedural controls were used to protect the anonymity of the respondents, to inform them there were no correct or preferred answers, to use clear and non-leading wording, to separate the sections for the independent and dependent variables, to avoid unnecessary repetition, to limit the length of the questionnaire and to emphasise that the responses were for academic purposes only.

The questionnaire also avoided over-reliance on negatively worded items, as complex reverse wording can lead to misunderstanding rather than effectively reduce response bias. Management accounting information and resource allocation decision items are treated as separate administrative topics to introduce psychological separation.

Common method bias was statistically tested after data collection. Harman's single-factor test was used as a first diagnostic but not as a stand-alone since recent methodological studies have identified substantial limitations of simplistic single-factor procedures [11]. In addition, a full collinearity test and comparison between a single factor model and the proposed measurement model was conducted.

2.11 Data Screening and Preliminary Analysis

The data were analysed by IBM SPSS Statistics and SmartPLS. Prior to hypothesis testing, the dataset was checked for missing values, duplicate responses, unengaged response patterns, extreme observations, distributional characteristics, multicollinearity, and possible non-response bias. Questionnaires with many missing data were excluded. Missing values were tested for missing at random and imputed when necessary. Descriptive statistics were frequencies, percentages, means and standard deviations. To approximate a test of non-response bias, early and late respondents were compared on the principal study constructs. Independent samples tests, analysis of variance or non-parametric equivalents were used to test for differences between professional and institutional groups depending on the distributional characteristics of the data.

2.12 Measurement Model Assessment

First the reflective measurement model was assessed before the assessment of structural relationships. Reliability of the indicators was evaluated using standardised outer loadings. Items with outer loadings of 0.708 or higher were kept. Items with lower loadings were considered for retention if they were theoretically important and if their inclusion did not adversely affect construct reliability or validity. Cronbach's alpha, composite reliability and rhoA were used to assess internal consistency reliability. Values between 0.70 and 0.95 were considered acceptable and values above 0.95 were checked for item redundancy. Average variance extracted was used to assess convergent validity. The average variance extracted value should be 0.50 or higher and this means the construct explained at least half of the variance in its indicators.

Discriminant validity was primarily assessed using the heterotrait-monotrait ratio of correlations (HTMT). Strict discriminant validity was observed for HTMT values less than 0.85, while values less than 0.90 were accepted for conceptually related constructs [13].

No items were dropped from the questionnaire simply to improve statistical indices. If an item was deleted, it was deleted on the basis of both statistical evidence and theoretical justification in an effort to preserve the conceptual coverage of management accounting information and resource allocation decisions.

2.13 Structural Model and Hypothesis Testing

Partial least squares structural equation modelling was used to test the research hypotheses. PLS-SEM was selected because the study was prediction-oriented; latent constructs were measured with multiple indicators. The analysis of complex models and survey data that did not fully meet multivariate normality assumptions was also appropriate. But the use was due to theoretical and analytical characteristics of the study, not just convenience of sample size [14].

The structural model was assessed by means of variance inflation factors, standardised path coefficients, coefficients of determination, effect sizes, predictive relevance, and bootstrapped confidence intervals. Variance inflation factors were examined for potential multicollinearity among predictor constructs. The coefficient of determination was used to measure the percentage of the variance of resource allocation decision quality explained by management accounting information. Effect size values were calculated to determine the contribution of each predictor construct to the model's explanatory power. Predictive relevance was assessed by means of the Stone-Geisser (Q²) procedure. Where possible, also the out-of-sample predictive performance was examined.

Standard errors, confidence intervals, t-values and p-values were estimated by bootstrapping with 5,000 resamples. A hypothesis was considered supported when the estimated path coefficient was in the expected direction, the corresponding confidence interval did not include zero and the p-value was <0.05.

Statistical significance was taken into account along with the size of the effect, explanatory power and theoretical relevance. First, the direct effect of the overall management accounting information construct was tested.

A second structural model was then estimated to test the individual effects of information relevance, accuracy, timeliness, comprehensiveness, accessibility, and use of cost and performance information.

2.14 Robustness and Additional Analyses

Additional analyses were conducted to assess robustness of findings. Hierarchical multiple regression was used as an adjunct to test whether management accounting information accounted for additional variance in resource allocation decision quality beyond respondent and organisational characteristics. To test whether professional role influenced the perceived usefulness of management accounting information, the perceptions of accounting and finance personnel were compared with the perceptions of programme administrators and senior managers.

Multigroup analysis was also performed with sufficient subsample sizes. The grouping variables were institutional category, managerial position, professional specialisation, years of experience, and degree of involvement in resource allocation decisions. Management accounting information was modelled as a single higher order construct and as separate first order dimensions to test alternative specifications. Stability of the findings was assessed by looking at the consistency of the principal path coefficients across the alternative models.

2.15 Ethical Considerations

The protocol for this study was reviewed and approved by the appropriate institutional research ethics committee before data collection. Participation was voluntary and on the basis of informed consent. The respondents were assured that they had the right to refuse to participate or to withdraw before submitting the questionnaire without any penalty. The study did not include classified financial information, confidential beneficiary information or restricted programme information. Participants were asked to assess management accounting practices and decision making processes rather than to disclose sensitive budgetary information. All data were stored securely and were only accessible to the research team. The findings were reported in the aggregate, with no identification of individual respondents or participating institutions in the published results.

2.16 Methodological Limitations

There were some limitations of methodology. First, the cross-sectional design could not establish temporal causality. Second, responses to the perceptual survey may not have fully captured actual budget allocation behaviour. Third, access restrictions on government institutions led to partial use of purposive sampling in some institutions. Fourth, the focus on Baghdad-based government institutions limited the direct generalizability of the findings to provincial departments.

To overcome these limitations, we recruited respondents with direct professional involvement in accounting and resource allocation, including several government institutions and occupational groups. We used procedural and statistical controls for common method bias, and validated the measurement and structural models before interpreting the results.

3. Results

3.1 Response Rate and Respondent Characteristics

A total of 300 questionnaires were distributed to officials in the accounting, budgeting, planning, auditing, programme administration and resource allocation functions of selected government institutions in Baghdad. 242 of them were returned. A total of twelve questionnaires were discarded due to significant missing data, patterned responses or not meeting the eligibility criteria. Therefore, 230 valid questionnaires were retained for analysis, and the valid response rate was 76.7%.

Demographic and professional characteristics of the respondents are presented in Table 1. The male respondents represented 62.2% of the sample while the female respondents comprised 37.8%. The respondents had sufficient academic preparation to understand accounting reports, budgetary procedures and resource allocation processes as most participants hold bachelor's degree or higher. In addition, 68.3% of the respondents had more than five years of professional experience which confirms the validity of their assessments of management accounting practices.

Table 1. Demographic and professional characteristics of the respondents

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	143	62.2

	Female	87	37.8
Age	Less than 30 years	29	12.6
	30–39 years	78	33.9
	40–49 years	75	32.6
	50 years and above	48	20.9
Educational qualification	Diploma or lower	26	11.3
	Bachelor's degree	131	57.0
	Master's degree	55	23.9
	Doctoral degree	18	7.8
Professional experience	1–5 years	73	31.7
	6–10 years	68	29.6
	11–15 years	49	21.3
	More than 15 years	40	17.4
Primary functional area	Accounting and finance	72	31.3
	Budgeting and planning	53	23.0
	Internal audit and control	38	16.5
	Programme administration	42	18.3
	Senior management	25	10.9
Involvement in allocation decisions	Moderate	81	35.2
	High	96	41.7
	Very high	53	23.1

The sample included respondents from several functional areas, of which accounting and finance personnel were the largest category at 31.3%, with budgeting and planning personnel at 23.0%. Moreover, 64.8% of respondents reported a high or very high level of engagement in decisions related to the allocation of resources. This distribution confirmed that the data primarily came from officials who had direct knowledge of the decision-making processes explored in the study.

3.2 Preliminary Data Screening

Before assessing the measurement and structural model, the data set was checked for missing values, outliers, response patterns, multicollinearity, and distributional characteristics. The proportion of missing values was < 1% in the retained questionnaires and the limited missing observations were replaced using the series-mean method. No duplicate answers found.

Skewness and kurtosis values were standardised and were within acceptable ranges. The skewness varied from –0.91 to –0.34, and kurtosis from –0.48 to 1.27. Although the distributions did not show severe non-normality, PLS-SEM was retained because the analysis was focused on prediction, latent constructs and simultaneous estimation of multiple structural relationships [14].

The variance inflation factor values for the independent constructs ranged from 1.46 to 2.39, and were all less than the conservative threshold of 3.3. These results suggest that multicollinearity did not materially affect the estimated relationships. An independent samples test comparing early and late respondents showed no statistically significant differences in the quality of management accounting information or resource allocation decisions (all p-values > 0.05). Hence, non-response bias was not considered a substantial threat to the findings.

3.3 Common Method Bias

Procedural remedies were used for the design and administration of the questionnaire, such as keeping the respondents anonymous, separating the predictor and outcome sections, wording the items in a neutral way, and stating that there were no preferred answers. The procedures were consistent with current recommendations for reducing common method bias in organisational survey research [11,12]. The first unrotated factor from Harman's single factor test explained only 31.84% of the total variance, far below 50%. Moreover, the full-collinearity variance inflation factors were between 1.53 and 2.61 and did not exceed 3.3. A single-factor confirmatory model also demonstrated considerably poorer fit than the proposed multidimensional measurement model. To summarise, these findings suggested that common method bias was unlikely to be the cause of the observed associations.

3.4 Descriptive Statistics

Table 2 presents the means and standard deviations for the study constructs. The overall mean of management accounting information was 3.76, which means that the respondents perceived accounting information as being moderately high used in the participating institutions. Accuracy and reliability had the highest mean score of 3.91, followed by relevance at 3.87. Timeliness scored the least mean score of 3.54. This means that the principal limitation was not necessarily the credibility of the information but the availability of the information at the time when the allocation decisions were made.

Table 2. Descriptive statistics of the study constructs

Construct	Mean	Standard deviation	Relative importance (%)	Rank
Information relevance	3.87	0.64	77.4	2
Accuracy and reliability	3.91	0.61	78.2	1
Timeliness	3.54	0.73	70.8	6
Comprehensiveness	3.68	0.69	73.6	4
Accessibility and clarity	3.62	0.71	72.4	5
Cost and performance information use	3.82	0.66	76.4	3
Overall management accounting information	3.76	0.58	75.2	—
Resource allocation decision quality	3.71	0.63	74.2	—

The mean score of resource allocation decision quality was 3.71, indicating a moderately positive evaluation of the efficiency, transparency, timeliness, strategic alignment, and equity of allocation decisions. However, the standard deviation of 0.63 was quite heterogeneous between the institutions and professional groups involved.

3.5 Measurement Model Assessment

The measurement model was evaluated through indicator reliability, Cronbach's alpha, rhoA, composite reliability and average variance extracted. We checked the outer loadings and dropped two indicators with loadings below 0.60, as their removal improved convergent validity without compromising the theoretical coverage of the respective constructs.

The loadings of the retained indicators ranged from 0.711 to 0.891. Cronbach's alpha values ranged from 0.801 to 0.902, rhoA ranged from 0.812 to 0.907 and the values of composite reliability ranged from 0.862 to 0.925. All values were above the recommended cut-off value of 0.70 but below 0.95, indicating satisfactory internal consistency and no evidence of excessive indicator redundancy.

Average variance extracted values ranged between 0.611 and 0.699, and therefore, were above the minimum threshold of 0.50. Therefore, the measurement model demonstrated appropriate convergent validity.

Table 3. Reliability and convergent validity assessment

Construct	Number of retained items	Loading range	Cronbach's alpha	rhoA	Composite reliability	AVE
Information relevance	4	0.752–0.861	0.842	0.849	0.893	0.677
Accuracy and reliability	4	0.781–0.891	0.875	0.881	0.914	0.727
Timeliness	4	0.711–0.848	0.801	0.812	0.862	0.611
Comprehensiveness	4	0.739–0.867	0.833	0.841	0.888	0.665

Accessibility and clarity	4	0.724–0.859	0.816	0.824	0.876	0.639
Cost and performance information use	5	0.748–0.882	0.884	0.889	0.915	0.683
Resource allocation decision quality	8	0.731–0.874	0.902	0.907	0.925	0.608

3.6 Discriminant Validity

Discriminant validity was assessed using the heterotrait–monotrait ratio. As shown in Table 4, HTMT values ranged from 0.514 to 0.842 and did not exceed the cut-off value of 0.90. Upper bounds of the bootstrapped confidence intervals were also below 1.00. Hence, the constructs were empirically distinguishable, despite their conceptual relationships.

Table 4. Heterotrait–monotrait ratio matrix

Construct	REL	ACC	TIM	COM	ACL	CPU	RAD
Information Relevance (REL)	—						
Accuracy and Reliability (ACC)	0.721	—					
Timeliness (TIM)	0.603	0.574	—				
Comprehensiveness (COM)	0.737	0.692	0.648	—			
Accessibility and Clarity (ACL)	0.629	0.618	0.681	0.704	—		
Cost and Performance Information Use (CPU)	0.756	0.718	0.621	0.779	0.664	—	
Resource Allocation Decision Quality (RAD)	0.763	0.696	0.672	0.781	0.654	0.842	—

These results were supportive of the reliability and validity of the measurement model and the structural relationships were evaluated.

3.7 Overall Structural Model

The first structural model tested the effect of general management accounting information on the quality of resource allocation decision. The standardised path coefficient was positive and statistically significant.

$$RAD = 0.417 + 0.692MAI + \varepsilon$$

Resource allocation decision quality was strongly and positively affected by management accounting information, ($\beta = 0.692$), ($t = 15.846$) and ($p < 0.001$). The 95% confidence interval, based on 1000 bootstrapped samples, ranged from 0.601 to 0.771 and did not include zero.

The coefficient of determination was ($R^2 = 0.527$) while the adjusted coefficient was ($R^{2adj} = 0.519$). Therefore, management accounting information and the control variables included accounted for 52.7% of the variance in the quality of the resource allocation decision. The model also showed predictive relevance with ($Q^2 = 0.309$), which was greater than zero.

The overall effect size of management accounting information was ($f^2 = 0.713$) and this shows a large substantive contribution to the quality of resource allocation decision.

Table 5. Overall structural model results

Structural relationship	B	Standard error	t-value	p-value	95% confidence interval	f ²	Decision
Management accounting information → Resource allocation decisions	0.692	0.044	15.846	<0.001	0.601–0.771	0.713	Supported

Model explanatory and predictive power: ($R^2 = 0.527$); adjusted ($R^2 = 0.519$); ($Q^2 = 0.309$).

So the main hypothesis was confirmed. The results provided evidence that greater quality and broader use of management accounting information were related to more efficient, transparent, timely, evidence-based and strategically aligned allocation decisions.

3.8 Effects of the Individual Dimensions

To test which management accounting information dimensions were the strongest contributors to allocation decision quality, a second structural model was estimated. The six dimensions collectively accounted for 61.4% of the variance of the dependent construct with an adjusted (R^2) of 0.603, and a (Q^2) value of 0.361.

As shown in Table 6, information use of cost and performance information had the strongest effect, followed by information relevance and comprehensiveness. Timeliness, accuracy and reliability, and accessibility and clarity also had statistically significant positive effects.

Table 6. Results of the individual dimension hypotheses

Hypothesis	Structural relationship	B	t-value	p-value	95% confidence interval	f ²	Decision
H1a	Relevance → Resource allocation decisions	0.216	3.742	<0.001	0.103–0.326	0.071	Supported
H1b	Accuracy and reliability → Resource allocation decisions	0.128	2.244	0.025	0.018–0.237	0.026	Supported
H1c	Timeliness → Resource allocation decisions	0.157	2.839	0.005	0.049–0.266	0.041	Supported
H1d	Comprehensiveness → Resource allocation decisions	0.183	3.018	0.003	0.063–0.298	0.050	Supported
H1e	Accessibility and clarity → Resource allocation decisions	0.119	2.081	0.038	0.009–0.232	0.023	Supported
H1f	Cost and performance information use → Resource allocation decisions	0.271	4.361	<0.001	0.149–0.389	0.094	Supported

Model explanatory and predictive power: ($R^2 = 0.614$); adjusted ($R^2 = 0.603$); ($Q^2 = 0.361$).

The largest standardised effect was for use of cost and performance information ($\beta = 0.271$). This result pointed to the fact that it was not enough only to prepare accounting reports; it was particularly important to actively include cost estimates, expenditure variances, output indicators and outcome information into allocation deliberations.

The second largest effect was information relevance ($\beta = 0.216$), whereby decision-makers gained most when reports directly responded to the alternatives, constraints, and programme priorities being considered. Comprehensiveness also had a meaningful effect ($\beta = 0.183$), demonstrating the value of integrating financial information with service outputs, beneficiary needs, programme risks and expected social outcomes.

Accessibility and clarity had the smallest coefficient ($\beta = 0.119$), but the effect was still statistically significant. This finding indicated that understandable and accessible reports contributed to quality of allocation, but their usefulness depended on the substantive relevance, scope and active use of the information.

3.9 Control Variables

Control variables were professional experience, managerial position, education, institutional category, and degree of involvement in budgeting. The level of involvement in resource allocation had a statistically significant positive effect on reported decision quality ($\beta = 0.116$, $p = 0.031$), suggesting that officials who were more directly involved were more likely to perceive the contribution of management accounting information.

Professional experience had a small positive effect ($\beta = 0.094$, $p = .047$). Inclusion of management accounting information in the model did not show statistically significant direct effects of educational qualification, gender and institutional category.

The results suggested that the primary associations were not due simply to respondent demographics or institutional affiliation.

3.10 Hierarchical Regression Robustness Test

Hierarchical multiple regression was used as a robustness check. When control variables were entered in the first step, the quality of resource allocation decision was accounted for by 12.8% of the variance. In the second step we entered the overall management accounting information, which increased the explained variance to 53.1%.

Table 7. Hierarchical regression analysis

Model	Predictors	R ²	Adjusted R ²	ΔR^2	F-change	p-value
Model 1	Control variables	0.128	0.108	0.128	6.438	<0.001
Model 2	Controls + management accounting information	0.531	0.516	0.403	191.672	<0.001

In the final regression model, management accounting information continued to be a strong positive predictor of resource allocation decision quality (($B = 0.741$, $\beta = 0.681$, $t = 13.845$, $p < 0.001$)). The similarity of the regression and PLS-SEM results confirmed the stability of this primary finding.

3.11 Group Comparisons

Differences in the principal constructs were examined by professional role. Accounting and finance staff had a mean management accounting information score of 3.83 compared to 3.71 for programme administrators and 3.77 for senior managers. The overall difference was statistically significant, but small ($F = 3.114$, $p = 0.027$).

Respondents with more than ten years of professional experience also reported better resource allocation decision quality than those with five years of experience or less ((3.82 versus 3.58, $p = 0.012$)). This difference indicated that accumulated institutional knowledge enhanced the ability to interpret accounting information and combine it with administrative constraints.

Multigroup analysis showed no statistically significant differences in the overall management accounting information–resource allocation relationship between accounting and non-accounting managers. The relationship was therefore largely stable across professional categories.

4. Discussion

4.1 Overall Impact of Management Accounting Information

The results showed that management accounting information has a positive and statistically significant effect on the quality of resource allocation decisions in government social expenditure programmes. The standardised path coefficient of 0.692 indicated significant improvements in the efficiency, transparency, timeliness and strategic alignment of allocation decisions when the quality and use of management accounting information were improved.

This result confirmed that the management accounting information was more than a recording of expenditure or a checking of formal financial procedures. It provided decision-makers with an analytical basis for comparing competing programmes, identifying cost pressures, evaluating past expenditure patterns and estimating the likely

consequences of alternative allocations. Recent evidence also indicates that accounting reforms can enhance expenditure discipline, fiscal transparency, cost-effectiveness and long-term financial decision making in the public sector [15].

The finding also matched with recent research that public managers need understandable cost information to make good use of accounting data in administrative decisions. Cost information may not be used to its full potential if managers do not know how to interpret it, or if accounting reports are not linked to the real decision problems [16]. Thus, the positive relationship found in Baghdad not only indicated the production of accounting information but also its transformation into useful evidence for the allocation of resources.

The model explained 52.7% of the variance in quality of resource allocation decision. This resulted in much explanation and implied that management accounting information was an important determinant of decision quality. But the residual variance indicated that the allocation decisions were also influenced by political priorities, statutory obligations, institutional capacity, emergency requirements, interdepartmental coordination and the total resources available to each programme.

4.2 Relevance of Management Accounting Information

Information relevance was found to have a significant positive impact on resource allocation decisions. The finding showed that the accounting information was more influential when it related directly to programme objectives, expenditure alternatives, service priorities, beneficiary needs and expected programme results.

Recent literature on the use of public sector information has highlighted the significance of relating financial and non-financial information to the duties and decisions of public officials. Although technically detailed information that is irrelevant to the decision being made may have little practical impact [17], Reports written simply to meet financial compliance may not be sufficient to justify the allocation of resources to competing social programmes.

The result also indicated that decision makers needed information that was structured around programme-level questions. The information provided included the cost of each intervention, the beneficiaries, the implementation status, variances in past expenditure, expected outcomes and the effect of a decrease or increase in funding. Such decision-oriented reporting was more helpful than aggregate expenditure reports in general.

This emphasis on relevance was consistent with recent evidence on the usability of public sector reporting. Faber and Budding found that public sector information is useful only to the extent that it is relevant, understandable and that it matches the supply of information with the actual needs of users [18]. Thus the usefulness of management accounting information in Baghdad depended on the extent to which reports addressed the allocation issues faced by programme managers and senior officials.

4.3 Accuracy and Reliability

Accuracy and reliability had positive and significant impact on quality of resource allocation decision. Reliable accounting records reduced the risk of allocation decisions being made based on incorrect programme costs, inconsistent expenditure classifications or inaccurate estimates of remaining financial resources.

Empirical evidence has recently found that stronger public sector accounting arrangements can improve financial transparency and impose greater discipline on public expenditure [15]. Accurate accounting information also allows comparisons to be made between approved allocations, actual expenditure, commitments, programme costs and available balances.

However, accuracy and reliability had less effect than relevance and use of cost and performance information. This suggested that technical correctness was a necessary but not sufficient condition for good quality allocation decisions. Accounting information may be accurate, but it is too aggregated, too delayed, or too far removed from programme outputs to influence the allocation process.

Thus, accuracy should be combined with relevance, timeliness and interpretability. A technically accurate report available after an allocation decision has been made may enhance accountability but provide little prospective decision support.

4.4 Timeliness

Timeliness had a positive and statistically significant effect on resource allocation decisions. It also showed the lowest descriptive mean among the six dimensions that delays in the preparation or distribution of accounting information represented a material weakness in the participating institutions.

Resource allocation decisions were time-sensitive, however, because they related to annual budget preparation, expenditure ceilings, approval of the programme, transfers among budget items and periodic reviews of implementation. Information received after these stages could not materially affect the approved allocation regardless of its accuracy.

This is in line with recent literature highlighting the growing significance of timely and accessible information in digital form in decision making in the public sector. Real time access, digital reporting and the integration of financial and non-financial information have been identified by current research as important areas for improving the use of accounting information by public officials [17].

Digital transformation could also cut reporting delays and provide decision-makers with more frequent updates on expenditures and performance. But recent research has also cautioned that digital technologies do not automatically enhance public-sector accountability or decision quality. Their effectiveness depends on the integration with the system, the institutional readiness, the governance arrangements and the ability of the users to interpret the information produced [19].

The findings thus supported the need for periodic programme dashboards, automated variance alerts and reports in sync with the government budget calendar. This would enable managers to respond to changes in expenditure and changing programme requirements before allocations become fixed by administrative processes.

4.5 Comprehensiveness

Comprehensiveness had a positive and significant effect on the quality of resource allocation decisions. Management accounting reports that contained conventional financial information and non-financial indicators on programme outputs, beneficiary coverage, implementation risks, service quality and expected outcomes improved allocation decisions.

Social expenditure programmes could not be assessed on the basis of how much was spent. A programme may spend the full approved budget, but not deliver the social outcomes it was intended to. In contrast, a programme with lower spending might be very efficient but not be able to reach priority beneficiary groups. The comprehensive information enabled officials to assess these multiple dimensions simultaneously.

Recent research has emphasised the necessity of treating financial and non-financial information in a combined way in the justification of governmental decisions and in the evaluation of public policies [17]. Meanwhile, the use of both types of information can improve policy decisions, public accountability and trust in government institutions.

Thus the result supported an integrated reporting approach. Programme level reports should include budget allocations, actual expenditure, unit costs, achievement of outputs, number of beneficiaries, implementation delays, risks and outcome indicators. Such an integrated format could reduce reliance on past expenditure trends, and enable resources to be allocated to programmes which generated more robust social value.

4.6 Accessibility and Clarity

Accessibility and clarity had a positive and significant effect on the quality of the decision on resource allocation. Accounting information cannot support decisions if it is not accessible, understood and interpreted by authorised users.

This is directly supported by recent research concerning the usability of reporting in the public sector. Faber and Budding showed that the relevance, understandability, and balance of the abundance of information and the shortage of information affected the usability of accounting information [18]. Too much technical detail can be as much of a usability killer as too little information.

The coefficient of accessibility and clarity was relatively smaller, implying that just being readable was no guarantee of better decisions. Simplified reports were useful only if the underlying information was accurate, relevant, timely and complete.

The result also showed the importance of report adjustment for different professional users. Accountants may understand detailed classifications and reconciliation schedules but programme managers may want summarised

reports, visual trends, explanations of variances and programme level indicators. Thus, the same underlying data should be presented in different reporting layers according to the responsibilities of the users.

Authorised users could access the latest information on the programme through digital reporting systems, which could increase accessibility. However, digitalisation should come along with interoperability, data governance, training and controls on information quality [19].

4.7 Use of Cost and Performance Information

The effect of cost and performance information on the quality of the resource allocation decision was the most pronounced. This result showed that the existence of accounting information was less important than the active use of the accounting information during programme evaluation and budget deliberation.

Public institutions may routinely produce cost schedules, expenditure statements, variance analyses and performance indicators. These documents have limited value if they are prepared solely to meet administrative requirements and are not considered when programmes are competing for funds.

Recent quasi-experimental work with municipal public managers found that exposure and hands-on training improved managers' understanding and use of cost data in public-sector decision making [16]. This evidence supports the current finding that the use of cost information is partly dependent on whether managers can translate accounting figures into programme decisions.

The result was also consistent with recent research on the use of financial information by politicians in local government. Jorge et al. created an index to assess the use of financial-information and demonstrated that experience and individual characteristics affected the degree to which public officials incorporated financial evidence into decision processes [19].

The strong effect of use of cost and performance information suggested that Iraqi government institutions should consider formally integrating such evidence into allocation procedures. Programme funding requests should include information on unit costs, changes in expenditure in previous years, output performance, coverage of beneficiaries, risks to implementation and reasons for major changes to budgets.

Accounting information should also be discussed at allocation meetings and not be simply attached to programme files. This would turn accounting reports from retrospective documentation into active decision support tools.

4.8 Explanatory and Predictive Capacity of the Model

The dimensional model explained 61.4% of the variance in resource allocation decision quality and had predictive relevance value of ($Q^2 = 0.361$). These findings indicated that the combination of the six dimensions had a significant amount of explanatory and predictive power.

The explanatory power of the dimensional model (61.4%) was higher than that of the overall model (52.7%), indicating that the characteristics of management accounting information should be investigated separately. Considering management accounting information as a general construct may mask the relative importance of its dimensions.

The results indicated that the most influential dimensions were use of cost and performance information, relevance and comprehensiveness. Timeliness had the lowest mean and therefore was the dimension that showed the greatest need for institutional improvement.

The results of the study aligned with recent findings showing that public officials use information of different credibility, design, complexity, accessibility, and relationship to real policy decisions in different ways [17]. Thus, reforms in management accounting should be aimed at improving both the quality of information and the institutional patterns of information use.

4.9 Robustness of the Findings

The hierarchical regression results were consistent with the PLS-SEM results. Management accounting information explained an additional 40.3% of the variance after controlling for respondent and organisational variables. The coefficients from the two analytic methods were similar, which suggested a stable core relationship.

Respondents with more professional experience reported higher decision quality in the allocation of resources. This finding was consistent with recent evidence indicating that the experience of public officials affected the systematic use of financial information [19]. Experienced officials may be more aware of budget cycles, programme constraints, accounting classifications and informal institutional procedures.

The lack of significant difference between accounting and non-accounting professionals indicated that management accounting information was useful to different administrative users. But the presentation of the information and the training should be adjusted to the technical background of each group.

4.10 Theoretical Implications

The findings supported the decision-usefulness perspective because management accounting information influenced allocation decisions when it reduced uncertainty and allowed comparisons between alternative uses of public resources.

The results also showed that information usefulness was multidimensional. Reliability was important but accounting information also needed to be relevant, timely, comprehensive, understandable and incorporated into real decision routines."

The strongest effect concerned the use of cost and performance information. In theory, the difference between the production and the use of information is important. Modern accounting tools can be adopted in public institutions without achieving better decisions when information is detached from allocation procedures.

Similarly, recent public sector research has highlighted that the benefits of accounting and digital reforms are contingent upon institutional quality, users' capabilities, governance structures, and actual patterns of information use [15,16,19]. The study thus showed that the assessment of accounting reform should centre on its decision outcomes, instead of the quantity of reports or indicators generated.

4.11 Practical Implications

The findings showed that ministries and government agencies should align management accounting reports with the schedule of programme planning and resource allocation. Financial and performance information should be available prior to the finalisation of expenditure priorities and budget ceilings."

Financial and non-financial information should be integrated in programme reports. Each report should cover approved allocation, actual and committed expenditure, variance explanations, unit costs, output achievement, beneficiary coverage, implementation risks and expected outcomes.

And government institutions should also formalise requirements for the use of cost and performance evidence. Requests for funding, decisions on the continuation of programmes and transfers between categories of expenditure shall be supported by documented accounting and performance justification.

Training was another key requirement. Public managers should be trained in practical interpretation of cost information, programme variances, performance indicators and financial reports. Recent evidence has demonstrated that experiential learning can enhance public managers' comprehension of cost information and its application in decision making [20].

Finally, digital accounting systems should be integrated across budgeting, accounting, procurement and programme-monitoring functions. However, technology should not be viewed as a magic bullet. Digital reform requires data quality standards, institutional readiness, user training and clear accountability arrangements [19].

5. Conclusions and Recommendations

5.1 Conclusions

The results confirmed that management accounting information had a strong, positive and statistically significant effect on the quality of resource allocation decisions. The overall model explained 52.7% of the variance in decision quality and the dimensional model explained 61.4%, showing substantial explanatory and predictive power.

Among the dimensions studied, the use of cost and performance information had the greatest impact, followed by relevance and comprehensiveness of the information. This showed that accounting information was primarily creating value when it was actively integrated into programme evaluation, budget discussions and funding decisions.

Timeliness, accuracy and reliability and accessibility and clarity also significantly improved allocation quality, but their effects were comparatively smaller.

The findings also showed that the accounting information of the institutions under study was generally reliable and relevant. Yet there were still notable deficiencies in the timeliness of the production and transmission of information. The results also indicated that professional experience and direct involvement in resource allocation enhanced the ability of public officials to interpret and apply management accounting information.

The study concluded that overall management accounting information should not be treated as a compliance or retrospective reporting mechanism. It was an essential decision-support tool for improving efficiency, transparency, equity, accountability and strategic alignment in government social expenditure programmes.

5.2 Recommendations

Management accounting information should be systematically incorporated in all phases of programme planning, budgeting, implementation and evaluation by government institutions. Funding requests should include programme costs, expenditure variances, output indicators, beneficiary coverage, implementation risks and anticipated outcomes.

The production of accounting reports should be aligned with the timetable of the government budget and reports should be available prior to the finalisation of programme priorities and expenditure ceilings. To enhance the timeliness of information, digital dashboards and automatic variance alerts should be employed.

Deliver financial and non-financial information in combined reports at the programme level. Reports should be tailored to the needs of accountants, programme managers and senior decision-makers through clear summaries, explanatory notes and accessible performance indicators.

Public officials should be continuously trained on the practical aspects of cost analysis, performance measurement, variance interpretation and evidence based budgeting. There is also a need for government institutions to improve the integration between accounting, budgeting, procurement and programme monitoring systems.

Future research should use longitudinal designs, include institutions outside of Baghdad and compare reported perceptions with actual programme expenditure and performance data to improve causal interpretation and generalizability.

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