

Determinants of Fraud Risk in the Free Nutritious Meals Program: The Effects of Pressure, Opportunity, and Capability in the Public Sector

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Abstract

The implementation of the Free Nutritious Meals (MBG) Program as a national strategic policy has created new challenges related to fraud risk in public-sector logistics and budget management. The large-scale implementation of the program, rapid financial transactions, and complex food supply chains may create opportunities for fraudulent practices. However, empirical studies examining the determinants of fraud risk in the context of the MBG Program remain limited. This study aims to empirically examine the effects of pressure, opportunity, and capability on fraud risk in the MBG Program in the KPPG Bogor area. A quantitative approach with a causal-comparative research design was employed using a survey method. The research population consisted of volunteers, administrative staff, and technical personnel directly involved in the implementation and distribution of the MBG Program in the KPPG Bogor area. Respondents were selected using purposive sampling based on predetermined inclusion criteria. Data were analyzed using Structural Equation Modeling based on Partial Least Squares (SEM-PLS) with SmartPLS. The results indicate that opportunity and capability have positive and significant effects on fraud risk, with capability demonstrating the strongest effect. In contrast, pressure does not have a significant effect on fraud risk. These findings indicate that fraud risk in the MBG Program is more strongly associated with the availability of opportunities and the capabilities of individuals to exploit weaknesses in the control system than with economic or performance-related pressure. The study highlights the importance of strengthening internal controls, access authorization, logistics monitoring, and technology-based reporting systems to mitigate fraud risk in the implementation of the MBG Program.

Keywords: Capability; Fraud Risk; Free Nutritious Meals; Opportunity; Pressure; Public Sector.

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INTRODUCTION

Public-sector governance continues to face significant challenges related to budget leakage, inefficient resource allocation, and the misuse of public resources. These challenges become increasingly important when governments implement large-scale social programs involving substantial financial resources, complex administrative processes, and extensive supply chains. The Free Nutritious Meals (MBG) Program is one of Indonesia's national priority programs designed to improve nutritional status and support the development of high-quality human resources. The implementation of such a large-scale program requires

effective governance, accountability, and risk management to ensure that public resources are utilized appropriately.

The governance framework of the MBG Program has become increasingly important following the enactment of Presidential Regulation of the Republic of Indonesia Number 115 of 2025 concerning the Governance of the Free Nutritious Meals Program. The regulation explicitly addresses the implementation of the program as well as monitoring, supervision, control, evaluation, reporting, funding, and procurement. It also requires risk management in the implementation of the program to reduce potential risks and mitigate their impacts. These regulatory requirements demonstrate that risk management and control mechanisms are integral components of the MBG governance system. Nevertheless, the large operational scale of the program, the involvement of multiple actors, and the complexity of food procurement and distribution may create vulnerabilities that require continuous assessment.

Fraud represents one of the risks that may undermine the effectiveness and accountability of public-sector programs. Fraudulent practices may involve manipulation of financial information, inflated costs, irregularities in procurement, or misuse of resources. In public organizations, fraud can become particularly problematic because individuals may have access to public funds, operational information, and decision-making authority. Research on Indonesian local governments has demonstrated that fraud remains an important governance issue and that the factors explaining fraudulent behavior may include pressure, opportunity, rationalization, and capability. Rahmasari and Setiawan (2021), for example, examined the determinants of fraud in Indonesian local governments using the Fraud Diamond framework and found that opportunity and capability were positively associated with fraud, while the effect of pressure differed from the expected direction.

The behavioral and forensic accounting literature commonly explains fraudulent behavior through fraud-related theories. Cressey's (1953) Fraud Triangle Theory identifies pressure, opportunity, and rationalization as three conditions associated with fraudulent behavior. Wolfe and Hermanson (2004) subsequently extended this perspective through the Fraud Diamond Theory by introducing capability as an additional dimension. Capability refers to an individual's ability, position, skills, experience, and access that enable the individual to recognize and exploit weaknesses within an organizational control system. This perspective is particularly relevant to public-sector programs in which individuals may possess different levels of authority, technical knowledge, information access, and operational experience.

Empirical studies in Indonesia have provided evidence that fraud-related factors can vary across organizational settings. Kusuma et al. (2019), for example, found that pressure, opportunity, and capability significantly influenced accounting fraud tendencies among employees in public-sector institutions, whereas rationalization was not significant. Similarly, Nurwahyuni (2024) found significant effects of pressure, opportunity, rationalization, and capability on fraud in a provincial government agency in South Sulawesi. Research on village fund management has also demonstrated that pressure and weaknesses in internal control can contribute to fraudulent intentions, highlighting the importance of organizational control mechanisms in public-sector environments.

These findings indicate that fraud risk cannot be understood solely from an individual behavioral perspective. Organizational conditions, particularly the availability of opportunities created by weak internal controls, inadequate supervision, and insufficient

monitoring, may determine whether an individual is able to exploit a weakness in the system. At the same time, capability may become particularly important when individuals possess extensive knowledge of operational procedures, access to sensitive information, or authority to influence transactions and other actors.

The implementation of the MBG Program provides a distinctive setting for examining these relationships. The program involves food procurement, logistics management, financial administration, inventory recording, and distribution activities that require coordination among multiple actors. Such operational complexity may increase the importance of segregation of duties, authorization, monitoring, and documentation. Although the regulatory framework already emphasizes monitoring, supervision, control, evaluation, reporting, procurement, and risk management, the effectiveness of these mechanisms depends on how they are implemented at the operational level.

Despite the increasing strategic importance of the MBG Program, empirical evidence concerning the determinants of fraud risk within its implementation remains limited. Existing fraud studies in Indonesia have primarily examined local governments, village funds, government agencies, or other public-sector organizations. These settings provide important theoretical and empirical foundations, but the MBG Program has distinctive characteristics because it is a newly implemented national program involving large-scale food procurement and distribution. Therefore, examining fraud risk within the MBG implementation context can provide additional evidence regarding whether established fraud-related factors remain relevant in a newly established public program.

The present study focuses on three dimensions: pressure, opportunity, and capability. Rationalization is not included as an independent variable because the empirical model is specifically designed to examine the effects of these three factors on fraud risk. This approach allows the study to assess whether individual pressure, organizational opportunity, and individual capability provide significant explanations of fraud risk in the implementation of the MBG Program.

The research is conducted in the KPPG Bogor area, where individuals involved in the implementation and distribution of the MBG Program operate within a complex logistical and administrative environment. The study examines whether pressure, opportunity, and capability significantly influence perceived fraud risk among individuals involved in logistics recording, material procurement, and food distribution activities. By focusing on these operational actors, the study seeks to provide empirical evidence regarding the factors that may contribute to fraud risk at the implementation level.

Based on this research gap, this study aims to empirically examine the effects of pressure, opportunity, and capability on fraud risk in the MBG Program in the KPPG Bogor area. The study contributes theoretically by extending the application of fraud-related theories to a newly implemented national public program. The findings are also expected to contribute practically by providing evidence that may assist program managers and relevant stakeholders in strengthening internal controls, monitoring mechanisms, access authorization, risk management, and fraud prevention strategies.

More specifically, the study seeks to answer whether pressure, opportunity, and capability significantly affect fraud risk in the implementation of the MBG Program and which of these factors represents the most dominant determinant. Understanding these

relationships is important for developing risk-based control mechanisms that are aligned with the operational characteristics of the program.

METHODOLOGY

Research Design

This study employed a quantitative approach with a causal-comparative research design to examine the effects of pressure, opportunity, and capability on fraud risk in the implementation of the Free Nutritious Meals (MBG) Program. The research framework was developed to assess the relationships between the independent variables and fraud risk as the dependent variable.

The analysis was conducted using Structural Equation Modeling based on Partial Least Squares (SEM-PLS). This approach was selected because it enables the simultaneous analysis of relationships between multiple latent constructs and is suitable for predictive research models. Data analysis was performed using SmartPLS.

Population and Sample

The population comprised volunteers, administrative staff, and technical personnel directly involved in the implementation and distribution of the MBG Program in the KPPG Bogor area. The respondents were selected using purposive sampling based on predetermined inclusion criteria.

The inclusion criteria were: (1) respondents had been actively involved in the MBG program in the KPPG Bogor area during the pilot implementation period; and (2) respondents had authority or direct responsibility related to logistics recording, material procurement, or food distribution. Respondents who did not meet these criteria were excluded from the analysis.

Data Collection

Primary data were collected using a structured questionnaire. Data collection was conducted in three stages. First, formal research permission was obtained from the relevant KPPG Bogor authorities to ensure the legitimacy of the research process. Second, questionnaires were distributed using a mixed-mode approach involving both printed questionnaires and electronic forms. Third, the completed questionnaires were screened to assess response completeness. Incomplete responses were excluded before the data were tabulated and analyzed. All questionnaire items were measured using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree.

Measurement of Variables

The measurement instruments were adapted from previously developed instruments in forensic and behavioral accounting research, particularly studies by Kusuma et al. (2019) and Nurwahyuni (2024). Pressure was measured through indicators related to economic demands and performance-related pressures. Opportunity was measured through indicators related to the clarity of standard operating procedures (SOPs), the effectiveness of supervision, and the quality of monitoring mechanisms.

Capability was measured through indicators related to knowledge and mastery of logistics systems, access to information, work experience, and the ability to influence other individuals within the operational environment. Fraud Risk was measured based on respondents' perceptions regarding the potential occurrence of financial statement manipulation, cost inflation or mark-up, and irregularities in the allocation of food logistics.

Data Analysis

Data analysis consisted of two main stages: evaluation of the measurement model (outer model) and evaluation of the structural model (inner model). The outer model was evaluated to assess the reliability and validity of the measurement instruments. Internal consistency was assessed using Cronbach's Alpha, while construct validity was evaluated based on the relevant measurement criteria.

The inner model was subsequently evaluated to examine the hypothesized relationships between pressure, opportunity, capability, and fraud risk. Hypothesis testing was conducted using the bootstrapping procedure in SmartPLS. The analysis produced path coefficients and corresponding significance levels. Hypotheses were evaluated at a 5% significance level, with a p-value below 0.05 indicating a statistically significant relationship.

The explanatory power of the structural model was assessed using the coefficient of determination (R^2), which indicates the proportion of variance in fraud risk explained by pressure, opportunity, and capability.

RESULT AND DISCUSSION

Measurement Model Evaluation

The measurement model was initially evaluated to assess the reliability and consistency of the constructs used in the study. The results of the reliability analysis based on Cronbach's Alpha are presented in Table 1.

Table 1. Construct Reliability Results

Variabel	Cronbach's Alpha	Interpretasi
<i>Pressure</i>	0,534	Low Reliability
<i>Opportunity</i>	0,781	Good
<i>Capability</i>	0,777	Good
<i>Fraud Risk</i>	0,897	Excellent

Source: Data processed using SmartPLS.

The results indicate that Opportunity, Capability, and Fraud Risk demonstrate satisfactory internal consistency, with Cronbach's Alpha values above 0.70. Opportunity and Capability have Cronbach's Alpha values of 0.781 and 0.777, respectively, while Fraud Risk demonstrates the highest reliability coefficient at 0.897. In contrast, the Pressure construct has a Cronbach's Alpha value of 0.534, indicating relatively low internal consistency. Therefore, the measurement items for Pressure should be interpreted with caution, and further assessment of individual indicator loadings is necessary to determine whether any item should be retained or removed.

Correlation Analysis

Correlation analysis was conducted to identify the initial direction and strength of the linear associations between the independent variables and Fraud Risk. The results are presented in Table 2.

Table 2. Correlation Matrix

Relationship	Correlation Coefficient	Interpretation
<i>Pressure → Fraud Risk</i>	0,477	Moderate
<i>Opportunity → Fraud Risk</i>	0,636	Strong
<i>Capability → Fraud Risk</i>	0,667	Strong

Source: Linear correlation coefficients at the 5% significance level.

The results indicate that Capability has the strongest correlation with Fraud Risk, with a coefficient of 0.667, followed by Opportunity with a coefficient of 0.636. Pressure demonstrates a moderate correlation with Fraud Risk, with a coefficient of 0.477. These findings provide preliminary evidence that individual capability and organizational opportunity may have stronger associations with fraud risk than pressure.

Structural Model and Hypothesis Testing

After evaluating the measurement model, the structural model was assessed using the bootstrapping procedure in SmartPLS. The analysis was conducted to test the three hypotheses proposed in the study. The results are presented in Table 3.

Table 3. Structural Model Results

Hypothesis	Relationship	(β)	P-Value	Decision
H1	<i>Pressure → Fraud Risk</i>	0,051	0,535	Not supported
H2	<i>Opportunity → Fraud Risk</i>	0,406	0,001	Supported
H3	<i>Capability → Fraud Risk</i>	0,536	0,001	Supported

Source: SmartPLS analysis; significance level = 5%.

The results show that Pressure does not have a statistically significant effect on Fraud Risk ($\beta = 0.051$; $p = 0.535$). Therefore, H1 is not supported. Opportunity has a positive and statistically significant effect on Fraud Risk ($\beta = 0.406$; $p = 0.001$). Therefore, H2 is supported. This result indicates that greater opportunities arising from weaknesses in procedures, supervision, and monitoring are associated with higher fraud risk.

Capability has a positive and statistically significant effect on Fraud Risk ($\beta = 0.536$; $p = 0.001$). Therefore, H3 is supported. Among the three independent variables, Capability demonstrates the largest path coefficient, indicating that it has the strongest effect on Fraud Risk within the proposed model.

Coefficient of Determination

The structural model produces an R^2 value of 0.510 for Fraud Risk. This indicates that Pressure, Opportunity, and Capability collectively explain 51.0% of the variance in Fraud Risk in the MBG Program in the KPPG Bogor area. The remaining 49.0% is attributable to other factors that are not included in the research model.

Table 4. Coefficient of Determination (R^2)

Endogenous Variable	R^2	Adjusted R^2	Interpretation
Fraud Risk	0.510	—	Moderate

Source: Data processed using SmartPLS.

Note: The R^2 value of 0.510 indicates that Pressure, Opportunity, and Capability jointly explain 51.0% of the variance in Fraud Risk, while the remaining 49.0% is explained by other factors outside the proposed research model.

Discussion

The Effect of Opportunity on Fraud Risk

The results demonstrate that Opportunity has a positive and statistically significant effect on Fraud Risk ($\beta = 0.406$; $p = 0.001$). This finding indicates that weaknesses in organizational procedures, supervision, and monitoring may increase the potential for fraudulent practices in the implementation of the MBG Program. When control mechanisms are insufficient, individuals may have greater opportunities to exploit weaknesses in the system for inappropriate purposes.

This finding is consistent with the perspective of fraud-related theories, which emphasizes that the existence of an opportunity is an important condition that enables fraudulent behavior to occur. In the context of the MBG Program, opportunity may arise from unclear operating procedures, inadequate supervision, and weaknesses in monitoring activities. The complexity of food procurement and distribution also increases the importance of effective control mechanisms because transactions involve multiple actors and operational stages.

The finding is consistent with Kusuma et al. (2019) and Nurwahyuni (2024), who identified weaknesses in internal control and organizational conditions as relevant factors associated with fraud in public-sector environments. The present finding further indicates that strengthening formal control procedures and monitoring mechanisms is particularly important in newly implemented large-scale public programs such as MBG. From a practical perspective, the result suggests that fraud prevention should focus not only on individual behavior but also on reducing opportunities for fraudulent practices. Clear standard operating procedures, segregation of duties, periodic monitoring, and adequate documentation should be integrated into the implementation of the MBG Program. Strengthening these mechanisms may reduce the possibility that individuals can exploit weaknesses within the operational system.

The Effect of Capability on Fraud Risk

Capability has a positive and statistically significant effect on Fraud Risk and represents the strongest predictor in the research model ($\beta = 0.536$; $p = 0.001$). This result indicates that individuals with greater knowledge, experience, access to information, and the ability to influence other actors may have greater capacity to exploit weaknesses in organizational systems.

The finding is consistent with the Fraud Diamond perspective proposed by Wolfe and Hermanson (2004), which extends the traditional Fraud Triangle by incorporating capability as an additional dimension. Capability emphasizes that the existence of pressure and opportunity alone may not be sufficient for fraud to occur unless an individual possesses the ability to recognize, exploit, and conceal weaknesses within the system.

In the context of the MBG Program, individuals involved in logistics management, procurement, administrative processes, and distribution may possess different levels of technical knowledge and access to operational information. Individuals with extensive experience and greater access to sensitive information may be better positioned to identify weaknesses in procedures and exploit them. The positive relationship found in this study therefore suggests that capability represents an important factor in understanding fraud risk within the program.

This finding is also consistent with Kusuma et al. (2019), who identified capability as one of the relevant factors associated with fraudulent tendencies in public-sector organizations. The stronger coefficient of Capability compared with Opportunity and Pressure further indicates that individual competence and access may require particular attention in fraud prevention strategies.

However, the finding should not be interpreted as indicating that competence or experience itself causes fraudulent behavior. Rather, the result suggests that capability may increase fraud risk when it is combined with opportunities arising from weaknesses in the control environment. Therefore, organizations should ensure that individuals with substantial operational authority and system access are subject to appropriate supervision, authorization procedures, and accountability mechanisms.

The Effect of Pressure on Fraud Risk

The results show that Pressure does not have a statistically significant effect on Fraud Risk ($\beta = 0.051$; $p = 0.535$). Therefore, the first hypothesis is not supported. This finding indicates that economic demands and performance-related pressure, as measured in this study, do not significantly explain variations in perceived fraud risk among respondents involved in the MBG Program in the KPPG Bogor area.

This finding differs from several previous studies that have emphasized pressure as an important factor associated with fraudulent behavior in public-sector settings. Nurwahyuni (2024), for example, reported that pressure was relevant to fraud in a public-sector organizational context. The difference may be related to variations in organizational characteristics, respondents, institutional environments, and the nature of the activities being examined.

One possible interpretation is that respondents involved in the MBG Program may experience pressure that does not necessarily translate into an increased perception of fraud risk. Performance demands or economic considerations may exist, but other organizational and individual factors may play a more important role in determining whether weaknesses in the system can actually be exploited.

The non-significant finding should therefore not be interpreted as evidence that pressure is completely irrelevant to fraud. Rather, within the empirical model and research context examined in this study, pressure does not provide sufficient statistical evidence to explain Fraud Risk. This result highlights the importance of considering contextual factors when applying fraud-related theories to different public-sector environments.

The Dominant Role of Capability and Opportunity

Taken together, the findings indicate that Capability is the strongest predictor of Fraud Risk, followed by Opportunity, whereas Pressure does not have a statistically significant effect. The path coefficients show that Capability ($\beta = 0.536$) has a stronger effect

than Opportunity ($\beta = 0.406$), while Pressure has a substantially smaller and statistically insignificant coefficient ($\beta = 0.051$).

These findings suggest that fraud risk in the MBG Program may be more closely associated with the interaction between individual capability and weaknesses in the organizational control environment than with individual pressure alone. Individuals who possess substantial knowledge, experience, information access, and influence may be better able to identify and exploit opportunities created by weaknesses in procedures and monitoring.

The findings provide empirical support for the relevance of the Fraud Diamond perspective, particularly the role of capability, in understanding fraud risk in a public-sector program. At the same time, the significant effect of Opportunity confirms the continuing importance of organizational controls. Consequently, fraud prevention should address both dimensions simultaneously by reducing opportunities for manipulation while strengthening oversight of individuals who possess substantial authority and access within critical operational processes.

Theoretical and Practical Implications

Theoretically, this study contributes to the literature on behavioral and forensic accounting by providing empirical evidence regarding the applicability of fraud-related factors in the context of the MBG Program. The results particularly highlight the importance of Capability and Opportunity in explaining fraud risk, while the non-significant effect of Pressure demonstrates that the explanatory power of individual fraud factors may vary across organizational and institutional contexts.

Practically, the findings suggest that fraud prevention within the MBG Program should emphasize the strengthening of internal control systems and the management of access and authority. Periodic monitoring, clear segregation of duties, standardized operational procedures, appropriate authorization mechanisms, and systematic documentation should be strengthened throughout procurement, logistics, financial administration, and food distribution processes.

In addition, individuals with extensive access to logistics information and operational systems should be subject to appropriate oversight and accountability mechanisms. Technology-based reporting and monitoring systems may also be utilized to improve transparency and create traceable records of transactions and logistics activities. These measures are expected to reduce opportunities for manipulation and limit the ability of individuals to exploit weaknesses in the system.

CONCLUSION

This study examined the effects of pressure, opportunity, and capability on fraud risk in the implementation of the Free Nutritious Meals (MBG) Program in the KPPG Bogor area. The findings demonstrate that Opportunity and Capability have positive and statistically significant effects on Fraud Risk, whereas Pressure does not have a significant effect.

The results indicate that Opportunity has a positive and significant effect on Fraud Risk ($\beta = 0.406$; $p = 0.001$). This finding suggests that weaknesses in standard operating procedures, supervision, and monitoring may increase the potential for fraudulent practices within the implementation of the MBG Program. Capability has the strongest effect on Fraud

Risk ($\beta = 0.536$; $p = 0.001$), indicating that individuals with greater knowledge, experience, access to information, and influence may have greater ability to exploit weaknesses in the organizational control system.

In contrast, Pressure does not have a significant effect on Fraud Risk ($\beta = 0.051$; $p = 0.535$). This finding indicates that economic and performance-related pressures, as measured in this study, do not provide sufficient evidence to explain variations in fraud risk among respondents involved in the MBG Program. This result also suggests that the determinants of fraud risk may vary according to organizational and institutional contexts.

The model produces an R^2 value of 0.510, indicating that Pressure, Opportunity, and Capability collectively explain 51.0% of the variance in Fraud Risk, while the remaining 49.0% is explained by factors outside the research model. Overall, the findings emphasize the importance of organizational opportunities and individual capabilities in understanding fraud risk within the MBG Program.

From a practical perspective, the findings highlight the need to strengthen internal control mechanisms, monitoring procedures, access authorization, segregation of duties, and accountability systems, particularly in procurement, logistics, financial administration, and food distribution activities. Strengthening these mechanisms may reduce opportunities for fraudulent practices and limit the ability of individuals to exploit weaknesses within the system.

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