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MONETARY AND REAL CONSEQUENCES OF MILITARY EXPENDITURES IN IRAQ

Abstract

The purpose of this study is to analyze the effects generated by military spending in Iraq during the pre- and post-ISIS periods, covering the years from 2004 to 2024. The study focuses on the real and monetary implications of military expenditure by identifying the impact and direction of changes in military spending on a set of selected variables. The statistical bulletins of the Central Bank of Iraq and reports of the Iraqi Ministry of Finance were analyzed. Regression analysis and confirmatory factor analysis (CFA) using Amos 22.0 were adopted. All the study hypotheses were assessed, and all relationships were significant, as it became clear that military spending has a positive impact on the monetary base (+0.74), market value of the Iraqi stock market (+0.73), and credit provided to the government (+0.68), meaning that there is a direct relationship. Moreover, the study found a negative impact on the inflation rate (-0.64), number of victims (-0.24), economic growth (-0.26), and assets of commercial banks (-0.47), revealing an inverse relationship between the studied variables and military spending. The central conclusion of the study is that military spending in Iraq, given its growing significance over the past decades and its continued presence in federal government budgets, has become a factor influencing many economic indicators.

Keywords

military expenditures, monetary consequences, real consequences, structural model

JEL Classification

E62, H56, E31

INTRODUCTION

Military expenditure constitutes one of the most significant forms of government spending, exerting notable effects on both the monetary and real sectors. Indeed, numerous studies have examined its impact on inflation, while others have focused on its relationship with economic growth; however, most of this literature pertains to advanced economies. In contrast, despite the importance of this economic variable in the Iraqi economy due to the wars, terrorist attacks, and instability that this country has experienced, there is a scarcity of studies that investigate the direction and nature of the relationship between military expenditure and key real and monetary variables.

The importance of studying military expenditure arises from its longstanding relevance to governments worldwide, both advanced and developing. Its clear emergence dates back to World War I, which triggered a phase of monetary development that led countries to abandon the gold standard to confront the rising costs of the wartime military effort. This, in turn, necessitated the issuance of currency without gold cover.

On the other hand, at present, there is an ongoing arms race and numerous military and security developments at both the domestic and international levels. Examples include: the Arab Spring revolutions and the accompanying increases in security force armament; terrorist groups operating in several regions, most notably Iraq; the military

operations in Syria that led to the fall of the Assad regime; the Russia–Ukraine war; the military confrontations between Iran and Israel; and the interventions of the United States.

As a result of these circumstances, which necessitate government intervention that may overlook an assessment of its economic and financial feasibility, there will certainly be repercussions at all levels – particularly in the monetary and real sectors.

An important point is that the consequences of this unusual government fiscal activity across various sectors will neither be equal nor move in the same direction across different countries and economies. They vary according to the nature of the economy and the responsiveness of certain variables to this fiscal shock. Its effects may be either negative or positive, potentially increasing employment levels and resource utilization through transmission mechanisms across all sectors, ultimately feeding into aggregate demand.

1. LITERATURE REVIEW

Public finance literature defines military spending (or defense spending) as the number of resources dedicated by a country to raise and maintain armed forces, or as the essential financing methods for defense. This funding plays a vital role in the country’s survival and existence, as it protects the country’s power and unity. The allocation of funds by the government for security and defense in any country depends on several factors, including political instability, economic and social structures, geopolitics, geography, and ethnicity. The most important factors that influence the size of financial allocations to military fields are looming security risks, the nature of the war, the level of democracy, the type of political system ruling the country, and its political orientations. The arms race and military show of force between competing countries should be taken into consideration, which has led some countries to increase their military budgets significantly (Üçler, 2016, p. 3088).

Defense spending encompasses both current and capital expenditures. This naturally includes expenditures allocated to the Ministry of Defense and peacekeeping forces, as well as all allocations to government agencies involved in defense projects. It also includes paramilitary forces for the purpose of completing their training and readiness for defense and military operations; it even includes activities concerning military space. The United Nations relied on SIPRI (2010) in its definition of military spending (Aiyedogbon & Ohwofasa, 2014, p. 5).

The most significant real effects of military spending are those related to national and human security. It would be surprising if military spending were not in some way related to national security, so the real question is what the relationship looks like and how to locate it. One possibility is that wartime spending increases just prior to the onset of a war, remains high after the war ends to pay for war losses, and then returns to peacetime levels. Arms spending might be more static in a long-term threat environment, perhaps changing relative to the changes in the threat (a rival country, or coalition of countries, a non-state threat, or an internal threat). Another possible indicator of a relationship between national security and military spending is the so-called “arms race response,” where nations competitively arm, either to try to top the other in military capacity or to engage in mutual deterrence. Such models assume that countries react to changes in the military capacity of a rival country (Sorenson, 2023, p. 112).

Regarding the relationship between military spending and human security, there is no universally agreed-upon, precisely defined definition of human security. However, some generally define it as focusing on the individual’s security in society rather than the security of the state. Therefore, it attempts to understand the issues that threaten humanity and find appropriate long-term solutions. In 1994, the United Nations (UNDP) called for the achievement of human security for the first time. In describing human security, the Human Development Report (UNDP, 1994) indicated that it is freedom from fear and want. Human security can be viewed from two perspectives: first, as se-

curity from chronic threats such as disease, hunger, and oppression; second, in daily life (at home, at work, or in the community), human security protects from harmful and unexpected disturbances. The second type concerns military and security spending. Human security, as stated in the report, consists of seven items: health, food, economic, personal, community, political, and environmental security (Eneje & Ogbu, 2022, p. 39).

In this context, a distinction can be made between two terms: national security and human security. Both are concerned with protecting the lives and property of individuals. At the same time, the difference lies in the fact that human security is about avoiding death because of the threat of violence, psychological and physical harm, and even kidnapping, all of which are linked to terrorist operations and crimes. While human security, as Adedoyin (2013) and Nnam et al. (2018) assume, is concerned with people's needs and removing their fear, and food, shelter, education, health, and freedom are the necessities of life that people strive to achieve (Adedoyin, 2013).

Despite the role that military spending plays in enhancing national and human security and reducing the casualties of wars and terrorist acts, there is another view that states that the continued high military spending has negative, long-term indirect effects on security. It encourages political and military behavior that undermines physical security, not to mention undermining economic security through its impact on the productive resource base and, consequently, shifting a country's output potential curve inward. However, this does not mean there is no possibility of using economic activities to enhance well-being and increase physical security (Dumas, 2014, p. 385).

On the other hand, understanding the impact of military spending on some macroeconomic variables is achieved by understanding the impact of fiscal policy on these variables. Fiscal policy (e.g., increased government spending) can have an asymmetric impact on economic activity across different nominal interest rates. Given the low real interest rate, Cho and Devereux (2005) found that expansionary fiscal policy (increased government spending) has a greater impact on economic growth in the short term. The same applies to

other variables such as interest rates and inflation, as the effects are asymmetric (Muhammad et al., 2009, p. 62).

In the long run, government spending has a significant impact on economic growth according to endogenous growth theories. This impact depends on the size and composition of government intervention. Moreover, the effects mentioned depend on the type of spending. For example, some public goods have a positive impact on growth, including research and development, public education, and infrastructure. Meanwhile, the impact on growth can be negative as government intervention increases, arguing that unproductive government spending is accompanied by slower income growth. Although this theory links the impact of spending on achieving a higher growth rate to productive spending, empirical findings do not generally support this idea. Endogenous growth theory believes that the relationship between long-term growth and military spending is inverse. This is evident from comparing both the direct and indirect costs of military activities with the resulting indirect benefits. Benefits can be greater than costs, resulting in a positive impact on growth if the military burden is small relative to the economy (Pieroni, 2009, p. 2).

However, there are two direct and interrelated ways in which high military spending can negatively affect long-run economic growth. First, increased military spending may reduce the aggregate accumulation of current resources available for other uses, such as investment in market-oriented technological improvement, education, and human capital. Second, high military spending can lead to increased deviations in the efficiency of resource allocation, thus reducing the total return factor. Military spending tends to dampen productivity because, as more money is diverted to it, the government has two options to balance its budget: either raise taxes or borrow from the foreign capital market. The second, involving loans, would be harmful to economic prosperity by raising interest rates, reducing demand for consumer goods, and slowing economic growth (Azam, 2020, p. 1).

Heo (1999) argued that military spending hinders growth through its negative impact on investment and exports, finding that military spend-

ing has a negative indirect effect on real income in South Korea. According to Yakovlev (2007), the effect of military spending on the expansion of new technology is positive because it indirectly affects the civilian economy. Conversely, the effect on a country's real income will be negative when the defense spending increases, according to Kollias et al. (2007). The effect of military spending on inflationary pressures is positive, as it reduces the number of resources needed by other sectors of the economy, according to Yakovlev (2007). Regarding the relationship between real growth and military spending (Joerding, 1986) found a causal relationship between them using the Granger causality approach across 57 least developed countries. Following Kusi (1994), the relationship was unidirectional in 12 countries, bidirectional in one country, and no causal relationship at all in 62 countries (Gokmenoglu et al., 2015, p. 456).

Regarding military spending in China, Furuoka et al. (2016) confirmed that the increase in this spending was due to the desire to expand economic development in China during the research period (1989–2011). Using the Granger approach, Meng et al. (2015) found that when the government in China increased military spending, income inequality also increased during the research period (1989–2012). Regarding the impact of military spending on the growth of some South Asian economies (Bangladesh, India, Sri Lanka, Pakistan, and Nepal), using cointegration analysis on data for the period (1988–2007), Meng et al. (2015, p. 338) concluded that a one-unit increase in military spending led to a 0.04% increase in GDP. Thus, the increase in military spending in these economies contributed weakly to growth. Faini et al. (1984), using a fixed effect model, revealed that the effect of military spending on investment and growth was negative when studying 69 countries during the research period (1950–1972). This means that military spending hindered growth by crowding out investment in the countries studied (Ologbenla, 2020, p. 69).

Some researchers have gone on to explain the situation through the neoclassical model. There is a negative relationship between economic growth and military spending, according to evidence by Deger and Smith (1983), Biswas and Ram (1986),

and Shahbaz et al. (2013). Increased military spending leads to lower economic growth due to the displacement effect. The neoclassical model can explain this result, as resources used for military purposes can be replaced and directed toward more profitable and productive economic sectors such as education and healthcare (Deger & Smith, 1983). Meanwhile, Dunne (1996) indicated that there is no statistically significant relationship between economic growth and military spending (Wan Suleiman et al., 2017, p. 89).

On the other hand, it is crucial to understand the effects of military spending on the unemployment rate, which is a key real-world consideration when making these expenditures.

Regarding the impact on employment, Marxism criticized defense spending in the 1960s as necessary to stabilize and expand the capitalist system, in addition to being wasteful. Baran and Sweezy (1968) argued that the state could solve unemployment problems caused by declining consumption by increasing military spending. They also argued that capitalism would resolve class conflict through this type of spending. The assumption that increased employment opportunities, both directly (more jobs in the armed forces) and indirectly (the arms industry), through increased defense spending, does not require reference to Marxist economic principles to support and justify it. Increased unemployment resulting from disarmament was a major cause of the fears that arose at the end of the Cold War (Bremmer & Kesselring, 2007, p. 4).

Pollin and Garrett-Peltier (2009) concluded that spending USD 1 billion on the military would create 11,200 additional jobs, while spending the same amount would create 16,800 in the green economy, 15,100 in household consumption, 17,200 in health care, and 26,700 in education. That is, investments in the green economy, healthcare, and education will produce between 50 and 140 percent more jobs than if the same amount of money were spent by the Pentagon (Pollin & Garrett-Peltier, 2009, pp. 2-3).

Military spending has opportunity costs, as does the financial system's humanitarian loss and the expense of mending Ukraine's post-war damage, as Khudaykulova et al. (2022) stress. The sanc-

tions imposed on Russia have had global effects, including increased inflation, decreased household consumption, uncertainty, supply chain disruptions, stock market volatility, and decreased investment. Following the Russian aggression, the price of food and food components rose globally, and the Purchasing Managers' Index (PMI) unexpectedly climbed as well, according to Ozili (2022). In the first month of the full-scale war, the manufacturing PMI for the Eurozone fell (Khudaykulova et al., 2022).

When examining the impact on banking industry by military spending, contemporary scholarship concentrates on examining the circumstances of nations impacted by conflicts that started in the twenty-first century, such as in Iraq (Damar, 2007; Saeed & Shanana, 2020), Yemen (Saif-Alyousfi, 2020), Lebanon (Sakr-Tierney, 2017), Syria (Gobat & Kostial, 2016), Afghanistan (Sahak & Choudhury, 2021), etc.

Researchers believe that the entire banking sector will suffer huge losses. Assessing the impact of political instability and wars on a systemic banking crisis, Ouedraogo et al. (2021) studied these effects over the period (1970–2016) in 92 developing countries. They emphasized that “conflict and political instability are associated with a greater likelihood of systemic banking crises” (Bernardelli et al., 2023, p. 145).

Bank profitability is affected by macroeconomic conditions (return on assets and return on equity). Saeed and Shanana (2020) studied these effects, taking Iraq as an example in the pre-war, transitional, and post-war periods. The results of their study showed that the interest rate during the pre- and post-war periods had a significant negative impact on banks' performance, which means that it played an important role in generating banks' profitability during the pre- and post-war periods. This indicates that an unexpected increase in the interest rate discourages bank customers' loans, which in turn affects bank performance (Bernardelli et al., 2023, p. 146).

Increased military spending as a result of wars can affect banks in two ways: directly (through the impact on stocks and credit in the warring countries) and through potential changes in the valuation of bank stocks (this also applies to companies repre-

senting another sector), and indirectly (through a decline in the credit standing of debtors and thus a decrease in the value of stock investments resulting from the deterioration of macroeconomic standards). The literature has addressed three possible effects of wars on banks (considering the ongoing war in Ukraine), and these effects include:

- a) direct and indirect channels of war impact on banks;
- b) the impact of war on the economy (indirect channels); and
- c) the capital market's reaction to the outbreak of war.

A state of war affects not only the economies of the countries waging it; the impact of wars also reaches the global economy.

The study aims to diagnose the monetary and real effects of military spending on the Iraqi economy. The significance of this issue arises from the fact that military expenditure in Iraq has increased over several consecutive decades due to persistent security and political instability. Accordingly, it is crucial to assess its actual and critical implications to clearly determine its positive and negative outcomes. Therefore, the following hypotheses are empirically tested:

- H1: *There is a positive effect of increasing military spending on the inflation rate, meaning that the relationship is direct.*
- H2: *Increasing military spending leads to a decrease in the number of victims of violence, which means that the relationship is inverse.*
- H3: *Military spending has a negative effect on economic growth, which means that the relationship is inverse.*
- H4: *Military spending is directly related to the monetary base, meaning that increasing military spending leads to an increase in the monetary base.*
- H5: *Military spending influences commercial banks' assets, meaning that increasing mili-*

tary spending leads to a decrease in commercial banks' assets; the relationship is inverse.

H6: *The market value of the Iraqi Stock Exchange is negatively affected by the increase in the volume of military spending, meaning that the relationship is inverse because increasing military spending leads to a decrease in the market value.*

H7: *Increasing government military spending increases government borrowing from commercial banks.*

The hypotheses were formulated based on previous studies related to our research interest and economic theory across its various intellectual schools.

2. METHOD

2.1. Research design

This paper was designed based on a quantitative method in the form of a correlational study with a causal relationship. The correlational research was also used to study the impact of the relationship between military spending (independent variable) on selected real and monetary (dependent) variables during two periods throughout 2004–2024. These coincided with the American war on the ruling political regime in Iraq, and the subsequent sectarian war, and then the emergence of terrorist groups (ISIS), and the subsequent period of building new military forces and strengthening the existing ones. This analysis included data collected from the Central Bank of Iraq and the World Bank's Development Indicators database. This paper used monthly time-series data for the research period. It includes 228 observations. The data obtained are processed and analyzed, drawing on theoretical and experimental studies, to address the formulated research hypotheses.

2.2. Operational definition

Military spending (X1) is the only independent variable that represents all the amounts spent by the government on the army and security forces, including salaries and weapons purchases. The

dependent variables were divided into two groups. The first group includes the real variables, which are the number of victims (Y1), economic growth (Y2), and the annual inflation rate (Y3). They are real variables because they determine real income. The second group includes monetary variables: base money (Y4), total assets or liabilities (Y5), market capitalization of the Iraq Stock Exchange (Y6), and finally, the credit provided to the government by Iraqi commercial banks. All variables are in millions of Iraqi dinars.

2.3. Validity and reliability measures

To verify the model's suitability indicators for the measurement scales, confirmatory factor analysis (CFA) was conducted using Amos 22.0. This analytical approach was used to address the econometric problems encountered by traditional econometric models using ready-made software, mainly because the study included seven dependent variables and one independent variable, which makes it difficult for traditional econometric models to incorporate them into a single model. This methodology proposal was applied for the first time in the study (Okolie et al., 2021).

As shown in Table 1, the overall goodness-of-fit was considered excellent, which shows how well the model fits the data through the SELF model fit indices.

Table 1. Model-data fit indicators

CFI	AGFI	GFI	RMSEA	C_{min}/DF
1	.999	1	0	.002

Note: $X^2 = .002$ (It is less than 2, which is evidence of the model's suitability to the data). $GFI > 0.9$ – Goodness of fit index (Evidence of how well the model fits the data); $AGFI > 0.9$ – Adjusted Goodness of fit index (Evidence of how well the model fits the data); $RMSEA = 0$ – Root means square error of approximation (It is less than 0.5. This is evidence of the quality and suitability of the model to the data). $CFI = 1$ – Comparative fit index (It is greater than 0.95, and thus all indicators indicate the extent to which the model is suitable for the data).

3. RESULTS AND DISCUSSION

As shown in Table 2, the binary correlations between the independent and the dependent variables of the study were all significant, less than 1% ($p < .01$). The strongest correlation was for military

Table 2. Bivariate correlations among variables

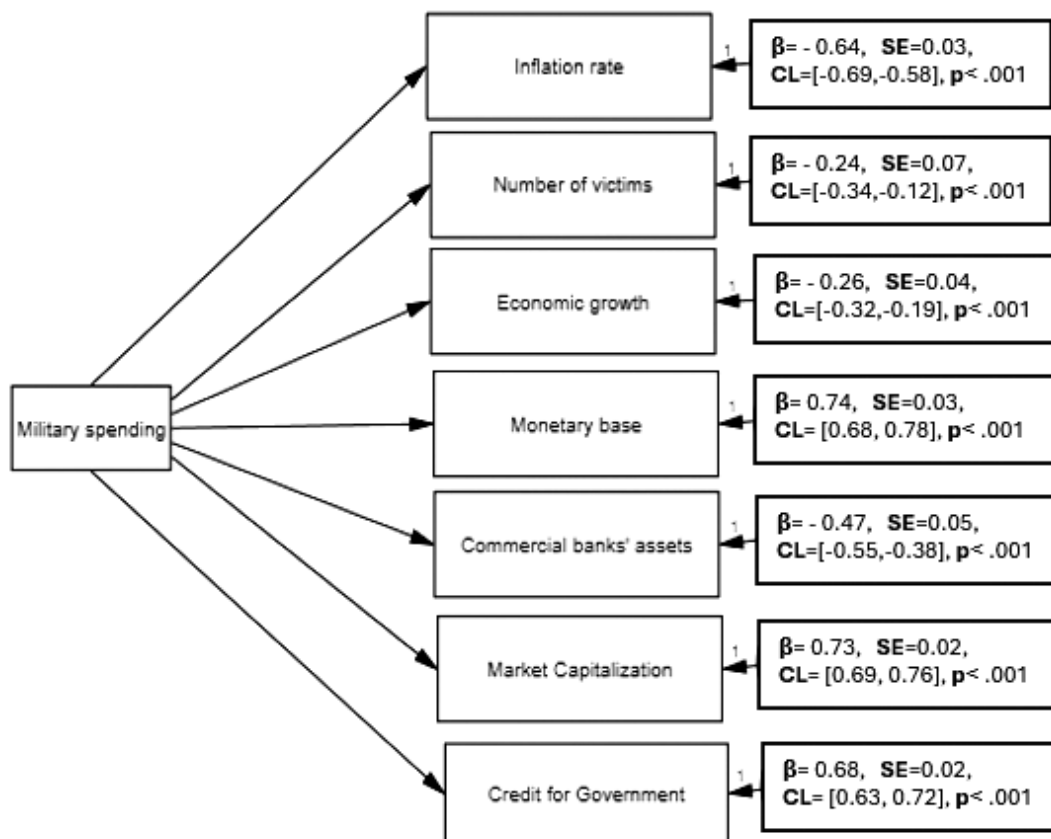
Variable	1	2	3	4	5	6	7
1- Military spending	1						
2- Inflation rate	-0.63**	1					
3- Number of victims	-0.23**	0.60**	1				
4- Economic growth	-0.25**	0.14*	0.04	1			
5- Monetary base	0.73**	-0.59**	-0.51**	-0.12	1		
6- Commercial banks' assets	-0.47**	0.18**	0.11	0.21**	-0.38**	1	
7- Market Capitalization	0.72**	-0.45**	-0.43**	-0.34**	0.88**	-0.55**	1
8- Credit for Government	0.67**	-0.45**	-0.48**	-0.24**	0.88**	-0.56**	0.91**

Note: N = 228, ** p < .01 (2-tailed).

spending with the monetary base and the market value of the financial markets, with a positive correlation of 0.73 and 0.72, respectively. These were followed by the strong correlation of each of the credit variables provided to the government, with 0.67, which is a positive correlation, as well as the correlation with the inflation rate, as the correlation was negative with -0.63. As for the correlation with the rest of the variables, it was negative and weak (commercial bank assets, economic growth, and number of victims) with a correlation of -0.47, -0.25, and -0.23, respectively.

Regarding the hypotheses, all direct relationships were tested simultaneously using structural equation modeling (SEM-AMOS 24.0) and applying 2000 bias-adjusted samples (with 95% confidence interval).

The parameter estimates are shown in Figure 1 for all direct relationships in the model. The model fit measures for the SEM- AMOS analysis (final model) indicated an excellent fit: $\chi^2 = 125.01$; $df = 71$; $\chi^2/df = 1.68$; CFI = 0.95; GFI = 0.97; TLI = 0.95; IFI = 0.92; SRMR = 0.03, RMSEA = 0.03, PClose = 1.00.



Note: All lines appear bold because all relationships are significant.

Figure 1. Structural model results

Figure 1 shows that all relationships were significant and smaller than $< .001$. It showed that military spending significantly affects the real variables, as it negatively affects the inflation rate ($\beta = -0.64$), and negatively affects the number of victims ($\beta = -0.24$), and positively affects economic growth ($\beta = -0.26$). As for the impact of military spending on monetary variables, they were all significant (with a significance of $< .001$). The direction and strength of this impact were as follows: military spending affects the monetary base positively ($\beta = 0.74$), while it affects commercial banks' assets negatively ($\beta = -0.47$), the market value of the financial market positively ($\beta = 0.73$), and finally, military spending affects the credit provided to the government positively ($\beta = 0.68$).

Based on the results presented in Figure 1, five out of the seven hypotheses of the study were validated, while two were not confirmed, namely, the first and the sixth hypotheses, which examine the effect of military expenditure in Iraq on inflation and on the market capitalization of the Iraqi Stock Exchange, respectively.

The first hypothesis was rejected, as a negative relationship between inflation and military expenditure was observed. The second, third, fourth, fifth, and seventh hypotheses were validated. The sixth hypothesis was rejected, as a

positive effect of military expenditure on the market value of the Iraq Stock Exchange was observed.

The result of the first hypothesis contradicted the economic theory that increased government spending leads to an increase in the inflation rate. The effect of military spending in Iraq was inverse on the inflation rate. This was explained by the Central Bank of Iraq, which, following an interventionist policy after 2004, aimed to control inflation rates and considered it a primary goal because the money supply is an internal variable for government activity, represented by oil exports (Thwaini & Hamdan, 2017).

The sixth hypothesis was not verified and proved to be inconsistent with economic logic, as the relationship was positive. The explanation for this positive result is that the government, to finance its increasing public expenditures, issued treasury bills at a relatively high interest rate, which helped stimulate the financial market in Iraq and encourage investment, ultimately leading to an increase in the market's assets. As for the seventh hypothesis, which was proven, the result was consistent with economic logic. This proved that the government relies heavily on borrowing from commercial banks due to the existence of some restrictions on direct borrowing from the Central Bank of Iraq related to the law, which supports the results of the other hypotheses.

CONCLUSION

The purpose of the study was to identify the real and monetary consequences of military expenditure in Iraq. The most significant finding is that military spending in Iraq holds substantial importance and has clear implications, whether real or monetary. The importance of military spending in Iraq stemmed from Iraq's exposure to many political and security conditions. The results indicated that all economic relationships were statistically significant and consistent with economic theory, except for the first and sixth hypotheses, in which the direction of the relationship between military expenditure and the inflation rate, and between military expenditure and the market value of the Iraqi Stock Exchange, was reversed.

The findings require the government to study the effects of military spending carefully to benefit from the power of influence in stimulating economic activity, according to these proven economic relationships. Another important point for decision-makers in fiscal and monetary policy is to develop coordinated strategies to maximize the benefits of the effects of these real and monetary variables (Hamdan & Hussein, 2020). It is worth noting that additional studies could be conducted to complement the issues addressed in this investigation on the Iraqi economy, namely the identification of the economic impact of military operations in the Gulf region, particularly in conjunction with the Iran-US conflict.

AUTHOR CONTRIBUTIONS

Conceptualization: Safaa Ali Hussein.
 Data curation: Safaa Ali Hussein, Ahmed Hamdan.
 Formal analysis: Ahmed Hamdan.
 Funding acquisition: Safaa Ali Hussein, Ahmed Hamdan.
 Investigation: Ahmed Hamdan.
 Methodology: Safaa Ali Hussein, Ahmed Hamdan.
 Project administration: Safaa Ali Hussein.
 Resources: Safaa Ali Hussein, Ahmed Hamdan.
 Software: Ahmed Hamdan.
 Writing – original draft: Safaa Ali Hussein, Ahmed Hamdan.
 Writing – review & editing: Safaa Ali Hussein.

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