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IMF Conditionality and Government Education Spending: The Case of 10 MENA Countries

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Abstract: This study explores the impact of International Monetary Fund (IMF)-linked conditionality on government education expenditures in the Middle East and North Africa (MENA) region. Understanding the impact of conditional lending by international financial institutions on education spending is important due to the pivotal role education plays in fostering social and economic development. We use country-level panel data encompassing a representative set of 10 MENA countries from 1990 to 2020 and employ a cross-national fixed effects regression model. Our findings suggest that IMF conditionality demonstrates a positive relationship with government education expenditures in the MENA region. The proposed explanation is that the application of IMF policy advice can have a catalytic effect on donor financing, including for education. This indicates that the Fund's financing arrangements in the region can free up fiscal space for social spending, which, in turn, signals a sort of departure of the IMF from the reputation that typically precedes it—its traditional bias for macroeconomic stability irrespective of social costs. We argue that our findings are instructive for policy, especially if one shares the idea that education is a necessary prerequisite for achieving Sustainable Development Goal (SDG) 4: guaranteeing inclusive and equitable quality education and promoting enduring learning opportunities for all.

Keywords: conditionality; education expenditures; panel data; fixed effects; IMF; SDGs

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1. Introduction

Strengthening education is key to attaining universal primary and secondary education, a primary target of the sustainable development goals (SDGs). SDG 4 vows to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (UNGA 2015; Bruns et al. 2019, p. 27). Even before the SDGs were adopted, achieving universal primary education was a cornerstone of the millennium development goals (MDGs). The United Nations launched the higher education sustainability initiative (HESI) in 2012 as an open partnership programme between different UN agencies[1]. The Middle East and North Africa (MENA[2]) region has demonstrated reasonable progress on the education goal of the MDGs. As Figure 1 shows below, the completion rate for primary education increased from 48.7 percent in 1970 to 93.7 percent in 2020, a growth rate[3] of 92.4 percent over the respective period.

However, the quality and learning objectives of the SDGs are proving more challenging to achieve for both middle-income and low-income countries (Bruns et al. 2019). Despite increased access to education, especially amongst the youth in the MENA region, there are still concerns about educational inequality—that is, unequal access to education arising from income and regional disparities—and the quality and productivity of education, which represent increasingly complex challenges in the context of the MENA region (UNESCO 2009; El Hassan 2013; Rizk and Hawash 2020).

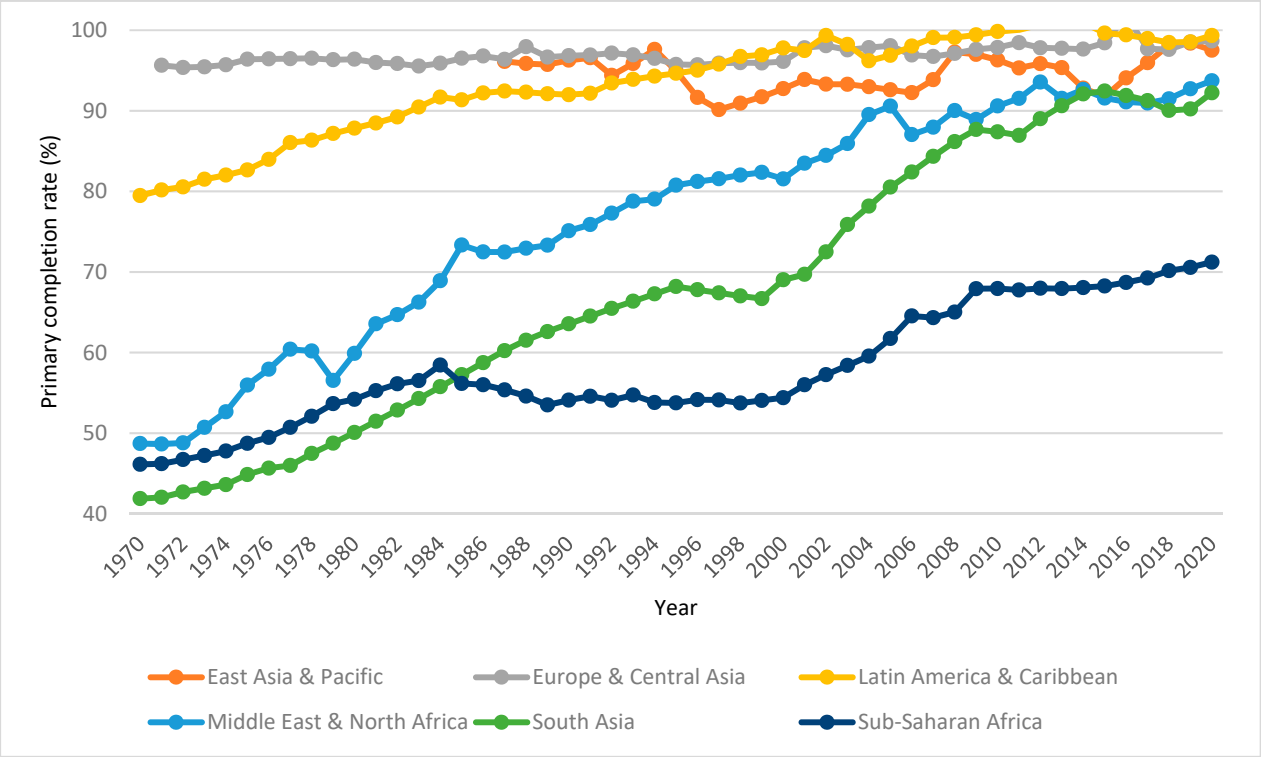

Figure 1. Primary completion rate, total (% of relevant age group). Source: World Development Indicators (WDI).

Generally, success in strengthening education depends on a country's ability to enhance access to education by building new schools and ensuring higher enrolment rates, as well as overcoming existing barriers to the development of education systems, including corruption and conflict, in addition to underinvestment in education infrastructure and personnel (Stubbs et al. 2017; Bruns et al. 2019). However, the main challenge to the expansion and/or strengthening of education—both access and quality—is finding the funding for it. Such a challenge becomes even more pronounced in MENA countries that have run protracted budget and balance-of-payments (BoP) deficits over time.

The International Monetary Fund (IMF) is considered the most influential international financial institution (IFI) that guides a country's fiscal policy regarding priority spending and the level of expenditures. The Fund was established in 1944 at the Bretton Woods Conference in the US state of New Hampshire, and one of its primary functions has been to provide financing (in foreign currency) to member states that suffer from significant deficits in their balance of payments (BoP) and acute shortages in their reserves of foreign currencies (IMF 2020). Such financial assistance is usually conditional on macroeconomic reform policies, known as stabilization and structural adjustment programmes (El-Said and Harrigan 2014). In other words, countries would agree to implement IMF-designed policy reforms phased over an agreed-upon period. There is an extensive body of research on the IMF and the impact of its reform policies on government spending in recipient countries. However, the empirical literature regarding the impact of IMF policies on government spending in the context of the MENA region remains scant. Moreover, the impact of IMF policies on government education spending in the region remains a subject in its infancy. This paper highlights the importance of accounting for education when looking at the potential impacts of IMF programmes in recipient countries.

This paper examines the impact of IMF conditionality on government education spending in a representative set of 10 MENA countries over the 1990–2020 period. It seeks to identify whether the conditions set forth by the IMF in its financing arrangements for MENA countries enhance or impede government spending on education. The paper is

structured as follows: Section 2 reviews the literature on IMF programmes and social spending in governments that receive IMF financial assistance. Section 3 provides an overview of the education landscape and the IMF lending arrangements in the MENA region. Section 4 describes the data and the model. Section 5 offers descriptive statistics and discusses the results. Section 6 concludes.

2. A Review of the Literature

2.1. IMF Programmes and Social Spending: Critics vs. Proponents

Several studies have attempted to examine the link between IMF-supported programmes and government social spending programmes and have produced mixed results.

Critics argue that countries implementing IMF-mandated reforms are more likely to reduce social spending on health and education to alleviate fiscal deficits. This may be due to wage cuts or wage ceilings—limiting government spending on wages—which discourage labour supply in these sectors and employment in health or education. Alternatively, it may be the case that foreign aid, which is intended to bolster social spending, may be diverted towards the repayment of existing debt or the shoring up of foreign currency reserves (Nooruddin and Simmons 2006; MacDonald 2007; Stuckler and Basu 2009; Baker 2010).

For instance, Nooruddin and Simmons (2006) found that IMF-mandated reforms led to both reduced health spending per person and a decreased share of government expenditure allocated to health and education. Similarly, Lu et al. (2010) noted that an increase in international aid to developing countries was associated with reduced domestic health spending. These findings align with IMF staff recommendations made to authorities in Mali, which participated in IMF programmes from 1995 to 2010. According to IMF staff, authorities were encouraged to reduce spending due to concerns that 'financing substantial increases in education and health sector wages with HIPC [Heavily Indebted Poor Countries] Initiative resources might ultimately prove unsustainable' (IMF 2005, p. 14).

In the MENA region, empirical evidence indicates that IMF structural adjustment programmes (SAPs) have had adverse effects on development indicators. Studies show that despite improvements in macroeconomic indicators, social conditions deteriorated in countries like Algeria, Egypt, Jordan, and Morocco, with worsening poverty, unemployment, and income inequality (El-Ghonemy 1998; El-Said and Harrigan 2014). Privatization policies also contributed to wealth concentration, increased inequality, corruption, and deepening social injustice (Mossallam 2015). Additionally, Sherry (2017) and Momani and Lanz (2014) argued that the IMF's focus on austerity-driven macroeconomic stabilization over social policy has hindered inclusive growth, with inadequate attention to health, education, and inequality, contradicting claims of increased post-crisis flexibility.

Other studies have reached opposite conclusions. As Clements et al. (2013) indicate, studies that have examined the relationship between programmes supported by the IMF and social spending between the mid-1980s and the mid-1990s show that the latter increased in IMF-programme participant countries when compared to non-participants (Gupta et al. 1998; IEO 2003).

Gupta (2010) argues that IMF-supported programmes have become more flexible in accommodating fiscal deficits over time; as of the onset of the global financial crisis of 2007–2008, aggregate wage ceilings have been virtually eliminated from IMF-mandated reforms, and social spending has not been affected by international aid flows.

2.2. Methods for Appraising IMF Conditionality

A significant part of the literature on the impact of IMF lending and its conditionality often involves employing panel data that includes a large number of countries—usually developing countries—over two or more decades (see Stubbs et al. 2020 for a review). In this common method, the main analytical unit is the country and corresponding year. Moreover, the models inspired by this method usually capture IMF conditionality by adopting a binary indicator that takes on a value of 1 if a country is engaged in an IMF programme

or lending arrangement with the IMF in a given year and a value of 0 otherwise (Bas and Stone 2014).

Nevertheless, as highlighted by Stubbs et al. (2020), many of the methods employed to assess the influence of IMF conditionality on variables like social spending, GDP growth, or capital inflows suffer from selection bias. This issue arises because countries participating in IMF programmes and those abstaining may exhibit systematic differences. What this means is that a country's decision to engage in an IMF programme is influenced by various factors, some of which are observable in the data (e.g., balance of payments), while others remain unobservable (e.g., the willingness to implement IMF-prescribed economic reforms, as discussed by Stone (2008) and Steinwand and Stone (2008). These factors must be appropriately addressed to account for potential endogeneity, which can yield misleading conclusions regarding the impact of IMF programmes on the variables of interest.

In other words, variants of the Heckman model can control for the selection of unobservables, such as motivation to succeed or political will, similarly to that of instrumental variable approaches. However, as Wooldridge (2015) indicates, Heckman variants are preferred over instrumental variable techniques when the dependent variable is binary. Different strategies have been used in the relevant literature to circumvent this shortcoming. One of the main strategies involves using variants of the Heckman selection models. We discuss this method below.

2.3. Variants of Heckman Sample Selection Models

Employing variants of the Heckman sample selection model serves as a valuable methodological approach to mitigating selection bias. This approach effectively treats the non-random selection of countries into participant and non-participant groups within IMF programmes as an instance of omitted variable bias. Omitted variable bias, in this context, emerges when one or more relevant variables are not encompassed within a statistical model, as explained by Heckman (1979).

In other words, variants of the Heckman model can control for the selection of unobservables, such as motivation to succeed or political will, similarly to that of instrumental variable approaches. However, as Wooldridge (2015) indicates, Heckman variants are preferred over instrumental variable techniques—that is, they are more efficient—when the dependent variable is binary.

Stubbs et al. (2020) discuss two Heckman variants widely used in the IMF literature: the standard Heckman model and the control function approach. According to the study, both approaches use a probit model to predict a country's participation in an IMF programme, generating the inverse Mills ratio. As Lang (2016) suggests, the equation denoting IMF participation entails an exclusion restriction, which is an excludable instrument that affects a country's selection into an IMF programme but does not affect the outcome of interest. After that, the inverse Mills ratio is then used as a control variable in the outcome equation, which is estimated using OLS.

The Independent Evaluation Office (IEO) of the International Monetary Fund (IMF) conducted an analysis employing a control function approximation to investigate the influence of IMF engagement on social expenditure. Their findings revealed a positive relationship (IEO 2003). Likewise, Shahin and Dibeh (2000) and Kentikelenis et al. (2015) employed a similar method to examine the impact of IMF participation on health expenditures. Their study disclosed a positive association in low-income countries (LICs) within the sub-Saharan Africa (SSA) region, while a negative association was observed in LICs in other geographic regions.

3. Government Education Expenditures and IMF Lending: The Case of the MENA Region

3.1. Spending on Education among MENA Governments

As Stacey and Behrman (2010) argues, education is considered a fundamental human right that gives rise to more productive societies. It is also shown to lead to higher employ-

ment, secure higher incomes, as well as create equal opportunities for people (OECD 2012; Sundaram et al. 2014).

Average government spending on education as a percentage of GDP exhibits a large degree of heterogeneity across MENA countries; the figures range between 2 percent for Mauritania and 8 percent for Yemen over the 1990–2020 period, as shown in Table 1. However, relative to the OECD average (4.94 percent), government spending on education is considered to be relatively high for many MENA countries, including Algeria (5.7 percent), Djibouti (6.8 percent), Morocco (5.1 percent), Tunisia (6.4 percent), and Yemen (8 percent).

Table 1. Government Expenditure on Education, total (% of GDP), 1990–2020.

Country	Average (1990–2020)	Min	Date	Max	Date
Algeria	5.7	4.3	2008	7.3	2016
Djibouti	6.8	3.5	2015	9.2	2000
Egypt	4.0	2.4	2020	4.7	2005
Iraq	4.2	3.5	1989	4.7	2016
Jordan	4.2	2.9	2019	7.4	1996
Lebanon	2.2	1.6	2010	2.7	2006
Mauritania	2.0	1.5	1997	2.3	2003
Morocco	5.1	4.3	1991	6.7	2020
Tunisia	6.4	5.7	1992	7.5	2011
Yemen	8.0	5.1	2008	9.6	2000
MENA	4.8	1.5	1997	9.6	2000
OECD	4.9	4.5	1999	5.4	2009

Source: World Development Indicators (WDI).

3.2. The Political Economy of IMF Involvement in the MENA Region

There is a large degree of heterogeneity in the economic structures of MENA countries. That is, the MENA region is home to different country groupings, which may include the following (Richards and Waterbury 2008): oil-surplus, low absorption economies (GCC, Libya, etc.); non-oil, high absorption economies (Egypt, Morocco, Syria, etc.); oil-surplus, high absorption economies (Iraq, Algeria, etc.); and small, non-oil economies (Lebanon, Jordan, Yemen, etc.). Nonetheless, there are a number of factors in favour of treating the MENA region as a unit in terms of the role of the IMF and the impact of its programmes in the region. There are three obvious reasons for this.

Firstly, since the waves of independence that swept through the Middle East and North Africa (MENA) region from the 1940s to the 1970s, a prevailing economic development model in most of the region's economies has consistently converged around interventionist and redistributive policies (Cammett et al. 1996). As Yousef (2004) argues, a significant manifestation of this orientation is the prevalence of common configurations of state-society relations across the region—a form of 'authoritarian bargain.' In this arrangement, Middle Eastern citizens accept limited political participation in exchange for economic security and welfare.

Secondly, the IMF's engagement in the MENA region commenced in the context of the mid-1980s oil glut, which exposed the widening gap between the deeply entrenched state-society arrangements inherent in the prevailing economic model at that time and the diminishing capacity of states to sustain their distributive commitments (El-Said and Harrigan 2014).

Thirdly, the IMF's involvement in the MENA region, also called the Southern and Eastern Mediterranean Region, intensified following the 2011 uprisings. In an IMF staff paper presented at the G8 Summit in Deauville, France, in May 2011, the Fund underscored its willingness, in collaboration with other regional and multilateral development banks, to support "MENA countries in formulating their economic strategy and translating it into a comprehensive, multi-year sector-specific development agenda embedded within a medium-term macroeconomic framework" (IMF 2011, p. 1). Furthermore, the IMF

reiterated its unwavering commitment to assisting member countries in the MENA region in achieving their objectives of sustainable and inclusive growth, economic stability, job creation, and improved living standards (IMF 2011, p. 16).

3.3. IMF Lending Arrangements in MENA

During the period spanning from 1990 to 2020, 10 Middle East and North Africa (MENA) countries availed themselves of IMF programmes. These countries included Algeria, Djibouti, Egypt, Iraq, Jordan, Mauritania, Morocco, Tunisia, Yemen, and Lebanon. Notably, although Lebanon did not receive a traditional IMF loan, it engaged in a specific programme in collaboration with the IMF, underpinned by the Fund's Emergency Post Conflict Assistance (EPCA) in 2007.

In total, 51 loans were extended to MENA countries. As Table 2 below shows, these loans are distributed as follows: standby arrangement (SBA, 17 loans), followed by the extended credit facility (ECF, 12), extended fund facility (EFF, 10), rapid credit facility (RCF, 6), precautionary and liquidity lines (PLL, 4), and rapid financing instrument (RFI, 2). The value of these IMF loans has reached a total of 45,903,739,000 SDRs[4].

Table 2. Types of IMF loans to MENA countries (1990–2020).

	Extended Credit Facility	Extended Fund Facility	Precautionary and Liquidity Line	Rapid Credit Facility	Rapid Financing Instrument	Standby Arrangement	Number of Loans	Total Amount Agreed (000 SDRs)	Amount Outstanding (000 SDRs)
Algeria	-	1	-	-	-	2	3	1,926,480	0
Djibouti	2	-	-	1	-	1	4	81,392	31,800
Egypt	-	2	-	-	1	3	6	15,303,110	13,471,983
Iraq	-	-	-	-	-	4	4	7,158,520	0
Jordan	-	5	-	1	-	3	9	4,001,054	1,216,205
Mauritania	7	-	-	2	-	-	9	450,800	235,152
Morocco	-	-	4	-	-	2	6	12,199,280	1,499,800
Tunisia	-	1	-	-	1	1	3	3,643,453	1,559,594
Yemen	3	1	-	2	-	1	7	1,139,650	19,500
Total	**12**	**10**	**4**	**6**	**2**	**17**	**51**	**45,903,739**	**18,034,034**

Source: IMF finances. The total number of conditions associated with IMF lending to MENA countries from 1990–2020 is 2068. Out of those, 1224 were binding conditions and 844 were non-binding. Mauritania had the highest number of IMF conditions, amounting to 633 conditions over the same period, followed by Iraq (294), Yemen (249), Djibouti (240), Egypt (204), Tunisia (184), Algeria (120), Morocco (112), Jordan (16), and Lebanon (16).

Egypt was the top MENA recipient of IMF lending over the study period, with a total value of 15,303,110,000 SDRs as of 2020. It was followed by Morocco (12,199,280,000), Iraq (7,158,520,000), Jordan (4,001,054,000), Tunisia (3,643,453,000), Algeria (1,926,480,000), Yemen (1,139,650,000), Mauritania (450,800,000), and Djibouti (81,392,000).

IMF lending typically comes with conditionality, which refers to the economic policies and reforms that countries agree to implement in exchange for financial assistance. These conditions are primarily designed to address the borrowing country's balance of payments issues and enhance its financial stability to ensure its capacity to repay the loan (IMF 2023a).

In Table 3, we provide a summary of various categories of IMF conditions, drawing on the works of Kentikelenis et al. (2016) and Kentikelenis and Stubbs (2023).

In the MENA region, the total number of IMF conditions, encompassing both soft and hard, amounted to approximately 2068 between 1990 and 2020. Figure 2 provides a detailed breakdown of these conditions by individual MENA country during this period.

Table 3. Categories of IMF conditions (by type and policy area).

IMF Conditions by Type		Description
1. Quantitative Conditions		
	1.1 Quantitative performance criteria QPC)	Quantifiable and binding conditions that form the bulk of conditionality. These are classified as hard conditions and must be met for the Executive Board to finalise a review. Examples include monetary aggregates, fiscal balances, and external debt levels.
	1.2 Indicative benchmarks /indicative targets (IB)	Quantifiable non-binding macroeconomic targets, serving as complementary benchmarks for QPC. These are classified as soft conditions. Examples include tax revenue floors.
2. Structural Conditions		
	2.1 Prior actions (PA)	Binding structural reforms, classified as hard conditions and are the strictest type of reform. They must be implemented before the Executive Board approves new financing or concludes a review. Examples include labor market reforms, such as reducing minimum wages.
	2.2 Structural performance criteria (SPC)	Binding reforms, crucial for the success of an IMF programme. These are classified as hard conditions and must be met before the Executive Board concludes a review. Examples include banking laws (Demir 2022).
	2.3 Structural benchmarks (SB)	Non-binding reforms, intended as markers for assessing broader programme progress. These are classified as soft conditions. Examples include financial sector reforms and public finance management.
3. Standard Conditions		
	3.1 Performance criteria (PC)	A set of binding economic reforms included in every IMF arrangement. These are classified as hard conditions. Examples include prohibiting multiple currency practices and import restrictions for balance of payments purposes, among others.
IMF Conditions by Policy Area		
1	External debt (DEB)	
2	Financial sector, monetary policy, and central bank (FIN)	
3	Fiscal policy (FP)	
4	External sector: trade and exchange system (EXT)	
5	Revenues and rax policy (RTP)	
6	State-owned enterprise reform and pricing (SOE)	
7	Labour issues: public and private sector (LAB)	
8	State-owned enterprise privatisation (PRI)	
9	Social policy: restrictive or neutral (SP)	
10	Poverty reduction policies (POV)	
11	Institutional reforms (INS)	
12	Land and environment (ENV)	
13	Residual category (OTH)	

Source: Adapted from Kentikelenis and Stubbs (2023).

Detailed information on IMF lending in the MENA region, including categorization by facility, loan value, and the number of associated conditions, can be found in Tables A1–A3 of Appendix A, Appendix B, and Appendix C, respectively. Additionally, the type and explanation of IMF lending facilities can be found in Box A1 of Appendix D.

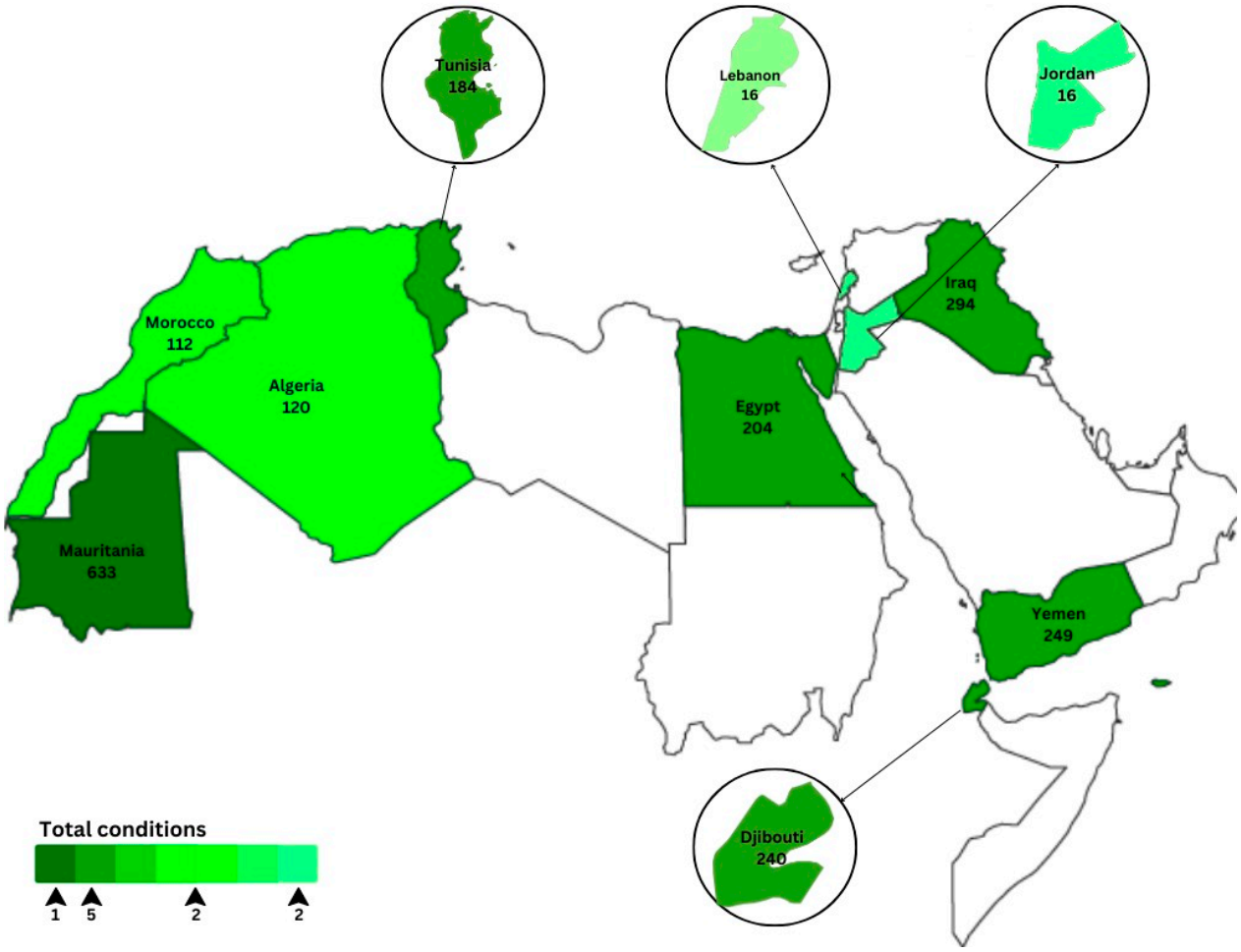

Figure 2. Number of IMF conditions by MENA country (1990–2020).

4. Data and Methodology

The primary objective of this study is to understand the impact of IMF lending conditionality on education expenditure within a representative sample of ten Middle East and North Africa (MENA) countries actively participating in IMF programmes. According to the Organisation for Economic Co-operation and Development (OECD), MENA countries include Algeria, Djibouti, Egypt, Iraq, Jordan, Lebanon, Mauritania, Morocco, Tunisia, and Yemen. The selection of these countries was based on their historical participation in IMF programmes from 1990 to 2019. Although other MENA countries have historically engaged with the IMF, only these 10 countries[5] were involved in an IMF programme or lending arrangement during the study period. Notably, the year 2020 is omitted from the analysis because the IMF conditionality variable lags by one year to align with the respective budget cycles.

The hypothesis that this study sets out is that IMF conditionality significantly influences education spending, though the direction of this impact—whether positive or negative—will be determined by the model outcomes. This hypothesis is relevant because understanding the influence of IMF conditionality on education expenditure is vital for assessing how external financial interventions, such as those imposed by the IMF, impact government spending priorities in the MENA region. Such understanding can guide policy decisions and foster more effective and equitable economic reforms.

This study, we argue, shall provide a general indication of the impact of IMF conditionality on social spending in the MENA region and the extent to which IMF policy design and implementation in the region concur with the institution's historical focus on

sustainable development in the aftermath of the 2011 Arab uprisings and, more broadly, the global financial crisis of 2007–2008.

4.1. Data

For the period 1990–2014, this study used the dataset in Kentikelenis et al. (2016), which provides data on IMF activities, policy reforms, and/or conditions in 190 member countries for the period 1980–2014, drawn exclusively from IMF archives and official documents. For the period 2015–2020, we gathered documents, mainly staff reports and loan agreements, from the IMF website pertaining to 10 countries from the Middle East and North Africa. These documents consist primarily of loan requests from the IMF under differing lending facilities, and they are produced by policymakers of the respective countries in collaboration with IMF staff. As pointed out by Stubbs et al. (2017), a country that requests an IMF loan usually shares a letter of intent with the IMF outlining the requested amount and duration, the loan's primary objectives, and its conditionality.

In this paper, we used the data extracted from the above sources and documents to construct a dataset of conditions that were linked to IMF programmes in MENA countries between 1990 and 2019. These conditions, which reflect IMF-mandated policy reforms, allowed us to quantitatively assess the effect of IMF programmes on government spending on education in the MENA region. We also relied on additional sources. These included the Global Burden of Disease (IHME 2019), the World Development Indicators database (World Bank 2023), and the IMF statistical database (IMF 2023b).

4.2. Model

The empirical model in this study is based on work by Stubbs et al. (2017), who attempt to explore the impact of IMF-linked conditionality on government health expenditures in 16 West African countries from 1995 to 2012. In this paper, however, we investigate the effects of IMF conditionality on government education spending per capita in 10 MENA countries over the period 1990–2020. Data on public education expenditure was retrieved from the World Development Indicators (WDI) database. The study period was dictated by the availability of data on government expenditures, capital inflows, and IMF lending arrangements in MENA countries.

Fixed effect regression for panel data allows compensating for time-invariant unobserved heterogeneity at the individual level, resulting in more robust and accurate estimates (Dibeh et al. 2019; Thuy and Hoang 2023). The use of fixed effect panel data analysis offers a solid foundation for investigating the complex links between government spending, socioeconomic outcomes, and policy success. By controlling for unobserved heterogeneity and accounting for individual-specific effects, researchers can obtain more reliable insights into the influence of government spending on numerous aspects of society and the economy.

To understand how IMF policies can affect government education spending in the MENA region, we started by focusing on binding (also known as 'hard'[6]) conditions. As outlined by Kentikelenis et al. (2017), binding conditions are those that the IMF puts the most significant emphasis on, and countries must meet them in order for IMF staff to conclude a review and agree to disburse the remaining loan tranches. The IMF places less emphasis on non-binding (or 'soft'[7]) conditions, which are used to track progress in implementing the IMF programme but do not result in suspending a loan in case of non-implementation.

Other factors can also play an important role in affecting government education spending. A sizeable portion of the literature links higher levels of economic development to larger social spending, including on education (Dritsakis and Adamopoulos 2004; Noorudddin and Simmons 2006; Busemeyer 2007). Accordingly, we include GDP per capita as an explanatory variable to proxy for the level of development in our model. We also control for net overseas development assistance (ODA). As indicated by Al-Samarrai et al. (2021, p. 11), the MENA region has been home to the most significant increase in aid to primary education since 2009, where its share in total ODA to basic education has risen

from 18 percent to 24 percent between 2009 and 2019[8]. Another factor considered important in understanding the impact of IMF policies on government education spending is the rate of inflation. Inflation is an important macroeconomic variable that influences government spending decisions since it can affect the government's purchasing power and the availability of resources for education spending. It is calculated as the annual percentage change in the GDP (implicit) deflator. Fourth, we control for the level of urbanization. As shown in Jetter and Parmeter (2018) and Zeaiter (2015a, 2015b), the size of urban dwellers is closely associated with the level of public spending on education, healthcare, and other social matters. We also include the incidence of conflict in our model since it is highly likely that civil wars and other types of armed conflict will destroy education systems through the loss of infrastructure and personnel (Lai and Thyne 2007). In order to control for time-invariant country-level characteristics as well as standard exogenous shocks that affect all countries under study, we include country-fixed effects and year-fixed effects, respectively.

Finally, in order to avoid potential bias caused by omitted variables—that is, to avoid ascribing the effect of unobserved factors to IMF conditionality—it is necessary to account for unobserved variables, especially since our sample of countries is not randomly assigned into a treatment group of participants in IMF programmes in a given year. For instance, a government's willingness to implement economic reforms can influence its decision to participate in an IMF programme and its social spending. In line with Nooruddin and Simmons (2006), Clements et al. (2013), and Coutts et al. (2019), we address this issue by including the inverse Mills ratio in our model. We generate the inverse Mills ratio by resorting to the Heckman two-step model and estimating the selection and outcome equations separately. The ratio is calculated as part of this process. According to Wooldridge (2010), including the inverse Mills ratio helps us avoid potential bias due to the non-random selection of countries into IMF programmes. It indicates that the selection variable (IMF conditionality) is related to the unobserved factors that affect the outcome variable (government spending on education). It, therefore, allows us to obtain reliable and unbiased estimates of the other regressors' coefficients.

We use a cross-national, fixed effects regression model[9].to estimate the impact of IMF-linked conditionality on government education expenditures. The results of the Hausman test for fixed versus random effects model can be found in Table A4 of Appendix E. Formally, our equation is written as follows:

$$\begin{aligned} EduXcap_{it} = a \quad & +\beta_1 IMFCond_{it-1} + \beta_3 GDPcap_{it-1} + \beta_4 ODA_{it-1} + \beta_5 Inflation_{it} \\ & +\beta_6 Urban_{it} + \beta_7 Conflict_{it} + \beta_8 imr_{it} + \beta_9 GovStab_{it} \\ & +\beta_{10} LawandOrder_{it} + {}_i + y_t + \varepsilon_{it} \end{aligned}$$

The independent variables (IVs) and dependent variables (DVs) in this study were chosen based on the theoretical foundations, the research questions, and the particular objectives of this inquiry. In the above equation, i denotes country and t denotes year. Our dependent variable, *EduXcap*, is the natural logarithm for government education spending per capita in constant 2015 USD. *IMFCond* refers to the number of binding conditions a country participating in an IMF programme must meet to ensure timely loan fund disbursements. *GDPcap* is the natural logarithm of per capita GDP in constant 2015 USD, and *ODA* is the natural logarithm of net overseas development assistance per capita in current USD. These three explanatory variables are included with a one-year lag in the model in order to correspond with the budget cycle (Stubbs et al. 2017). *Inflation* denotes the inflation rate, whereas *Urban* is the percentage of a country's total population living in urban areas, and *Conflict* is a dummy variable that takes a value of 1 if the number of deaths in a year from conflict and/or terrorism is greater than or equal to the average number of deaths for a country over the period 1990–2020[10]. Government stability, *GovStab*, and law and order, *LawandOrder*, are extracted from ICRG tables (prsgroup.com). *GovStab* denotes government stability, and it is a categorical variable that ranges from 0, low government stability, to 12, high government stability. The ICRG defines government stability as a government's capacity to effectively carry out its announced objectives and policies while

remaining in power. In contrast, *LawandOrder* is a categorical variable ranging from 0 to 6. The ICRG defines law and order as the government's responsibility to preserve social order, prevent crime, and protect the rule of law inside a country. The latter five independent variables enter the model contemporaneously. The *imr* is the inverse Mills ratio, which controls for a country's non-random selection into an IMF programme. Last but not least, μ is a group of country dummies denoting country-fixed effects, whereas y is a set of period dummies denoting year-fixed effects, and ε is the error term.

5. Descriptive Statistics and Results

5.1. Descriptive Statistics

Table 4 displays the model variables and the corresponding summary statistics. The variable $Conflict_{it}$ is a dummy variable that takes on either a maximum value of 1 to indicate the presence of some categorical effect that may be expected to shift the outcome or a minimum value of 0 otherwise. $IMFCond_{it-1}$ is a discrete variable denoting the number of hard, or binding, conditions. The remaining five variables ($LnEduXcap_{it}$, $GDPcap_{it-1}$, ODA_{it-1}, $Inflation_{it}$, and $Urban_{it}$) take on continuous values; a unit of measurement is stated below each variable.

Table 4. Summary statistics.

Variables	Observations	Mean	Std. Dev.	Min	Max
$\boldsymbol{EduXcap_{it}}$ (ln; **constant 2015 USD**)	126	7.53	0.67	5.75	8.79
$\boldsymbol{IMFCond_{it-1}}$ *(no. of conditions)*	84	14.57	10.45	1	49
$\boldsymbol{GDPcap_{it-1}}$ (ln; **constant 2015 USD**)	277	7.99	0.46	7.11	9.11
$\boldsymbol{ODA_{it-1}}$ (ln; current USD)	300	3.78	1.17	−1.07	6.70
$\boldsymbol{Inflation_{it}}$ (%)	283	12.14	33.60	−30.2	396.43
$\boldsymbol{Conflict_{it}}$ (dummy)	310	0.261	0.44	0	1
$\mathbf{Urban_{it}}$ (%)	310	61.53	18.10	20.93	91.41
$\mathbf{GovStab_{it}}$	310	5.55	3.33	0	12
$\mathbf{LawandOrder_{it}}$	310	3.56	1.23	0	6

The dataset consists of a total of 310 observations. The entries in the second column represent the count of sample observations that align with the variables included in our model. Instances where this count falls below 310 indicate the exclusion of specific observations from our model due to the presence of atypical or influential values that could potentially introduce distortions into our analysis. It is noteworthy that the mean values presented in the table represent straightforward averages for numerical variables and proportions for dummy variables.

Table 5 presents the correlation between our independent variables. All independent variables do not exhibit a high correlation with each other. The absence of high correlation suggests that the independent variables are relatively independent of each other and not strongly interrelated, which is an indication that the problem of multicollinearity is less likely to be a problem in the model. This makes it easier to interpret the individual effects of each variable and to obtain stable and reliable model coefficients. Table 6 presents the variance inflation factor (VIF) and the tolerance values (1/VIF). All values look good in

terms of Multicollinearity except for the *ODA_Conflict* variable. The main reason behind the high value of VIF is the existence of separate *ODA* and *Conflict* variables.

Table 5. Correlation matrix of independent variables.

Variables	*IMFCond*	*GDPcap*	*ODA*	*Inflation*	*Urban*	*Conflict*	*GovStab*	*Lawand Order*
IMFCond	1.00							
GDPcap	−0.058	1.00						
ODA	0.036	−0.258	1.000					
Inflation	0.156	0.104	−0.142	1.000				
Urban	−0.220	0.629	0.206	−0.174	1.000			
Conflict	−0.226	0.326	−0.176	0.209	0.239	1.000		
GovStab	0.03	0.001	0.67	−0.56	−0.56	−0.776	1.000	
LawandOrder	0.01	0.004	0.077	−0.44	0.87	−0.96	0.43	1.000

Table 6. VIF and tolerance table of all variables (1990–2020).

Variable		VIF	1/VIF
	----------+----------		
IMFCond	|	3.57	0.280112
GDPcap	|	4.86	0.205761
ODA	|	1.78	0.561797
Inflation	|	4.07	0.245700
Urban	|	5.03	0.198807
Conflict	|	6.34	0.157728
GovStab	|	5.34	0.187265
LawandOrder	|	5.12	0.195312
ODA_Conflict	|	7.65	0.130718
	----------+----------		
Mean VIF	|	4.86	

5.2. Results

Table 7 below presents the cross-national fixed effects regression analysis outcomes, illustrating the influence of IMF conditionality on government education expenditure within our selected sample of MENA countries. It is important to acknowledge that we are working with an unbalanced panel dataset, as certain countries have missing observations and others are solely observed for a subset of the time period encompassed in our analysis. Furthermore, it should be noted that our dependent variable, $EduXcap_{it}$, has undergone a logarithmic transformation. Consequently, the interpretations of predictor effects are expressed as percentage changes in government spending on education.

The four columns represent four different fixed effects regression equations, all applying the cluster-robust standard errors method. This method adjusts the standard errors to account for potential heteroscedasticity and within-cluster correlation, where clusters represent the individual countries in the panel.

The first column, ***Model 1***, presents the results of our fixed effects regression on independent variables, excluding the inverse Mills ratio. The two variables $IMFCond_{it-1}$ and $GDPcap_{it-1}$ exhibit a positive and statistically significant relationship with government education spending. $Inflation_{it}$ appears to be negatively correlated with government education expenditures, whereas $Urban_{it}$ shows a positive relationship. However, both variables demonstrate weak economic and statistical significance.

Table 7. Estimation of the fixed effects (within estimator) regression.

Variables	Dependent Variable: $\mathbf{EduXcap_{it}}$			
	Model 1	**Model 2**	**Model 3 Year-Fixed Effects**	**Model 4 Country-Fixed Effects**
$\mathbf{IMFCondi_{t-1}}$	0.012 *** (0.028)	0.016 ** (0.036)	0.25 *** (0.045)	0.088 ** (0.018)
$\mathbf{GDPcapi_{t-1}}$	0.87 ** (0.25)	0.058 *** (0.211)	8.49 *** (2.12)	3.46 ** (0.987)
$\mathbf{ODA_{it-1}}$	0.235 (0.23)	0.154 (0.243)	−0.0543 (0.214)	0.43 (0.278)
$\mathbf{Inflation_{it}}$	−0.012 (0.007)	−0.014 (0.007)	0.287 *** (0.052)	0.053 ** (0.017)
$\mathbf{Urban_{it}}$	0.011 (0.011)	0.007 (0.007)	−0.027 *** (0.054)	−0.056 (0.034)
$\mathbf{Conflict_{it}}$	0.156 (0.055)	(0.460) (0.564)	−2.76 *** (0.340)	0.252 (0.566)
$\mathbf{GovtStab_{it}}$	0.16 ** (0.0028)	0.14 ** (0.0025)	0.28 ** (0.01)	0.25 ** (0.009)
$\mathbf{LawandOrder_{it}}$	0.18 ** (0.02)	0.73 (0.056)	0.23 ** (0.334)	0.41 *** (0.134)
$\boldsymbol{ODA\_Conflict_{it}}$		0.134 (0.123)	0.412 *** (0.045)	−0.156 (0.167)
$\mathbf{imr_{it}}$			−10.2 *** (1.445)	−4.455 ** (0.997)
Constant	−1.224 (2.665)	−1.44 (2.443)	−24.22 (7.665)	−18.342 (4.33)
R-squared	0.745	0.797	0.976	0.856

Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$.

In the second column, ***Model 2***, we introduce an interaction term, *ODA_Conflict*, to our fixed effects regression equation. This term allows the model to capture the potential nonlinear or conditional effects that may arise from the interaction of ODA_{it-1} and $Conflict_{it}$. Specifically, it helps us to explore how the effect of ODA on government education spending is influenced by the presence of conflict in the MENA region by capturing the combined effect of ODA and conflict on government education expenditures—that is, whether the effect of ODA is amplified or dampened in the presence of conflict. A positive coefficient on this term suggests that the effect of ODA on government education spending is larger during periods of conflict, while a negative coefficient indicates a dampened effect. As the results show, both Models 1 and 2 return the same results.

The third column, ***Model 3***, presents the results of our third regression equation after introducing the inverse Mills ratio and controlling for year-fixed effects. Controlling for year-fixed effects allows us to account for time-specific factors that may affect our dependent variable but that are not captured by the independent variables in our model. In other words, these year-fixed effects help to control for unobserved time-varying factors that may be correlated with both the dependent and independent variables, thereby reducing the potential for omitted variable bias. As column three shows, all variables except ODA_{it-1} are economically and statistically significant. $IMFCond_{it-1}$, $GDPcap_{it-1}$, $Inflation_{it}$, and *ODA_Conflict* are all positive and statistically significant (at the 1 percent level). On the other hand, $Urban_{it}$, $Conflict_{it}$ and imr_{it} are negative and statistically significant (at the 1 percent).

Further interpretation of the results will be provided below. However, an explanation is warranted here regarding the $Conflict_{it}$ and *ODA_Conflict* variables. The negative and statistically significant coefficient on $Conflict_{it}$ suggests that, when controlling for time-specific factors, government education spending in conflict-ridden countries is lower than in countries that are not conflict-ridden. This is because violent conflict can play a role in redirecting government funds away from education and towards other pressing priorities such as healthcare, security, and/or military spending. Consequently, government education expenditure may decrease during periods of conflict or in post-conflict situations (Adeola 1996; Ghobarah et al. 2003; Zeaiter and El-Khalil 2016; Hilmi et al. 2021). However, the interaction term *ODA_Conflict*, which captures the combined effect of ODA and conflict on government education expenditures per capita, is positive and statistically significant. This implies that the impact of ODA on education expenditures is not constant but varies depending on the presence or absence of conflict. When there is conflict in the MENA region, the relationship between ODA and government education spending per capita becomes stronger compared to periods without conflict.

The fourth column, ***Model 4***, presents the results of our fourth regression, which includes the inverse Mills ratio and controls for country-fixed effects. Including country-fixed effects helps us isolate the independent variables' impact on the dependent variable, taking into account any common country-specific characteristics that may influence our outcome variable. Controlling for country-fixed effects allows us to address the issue of unobserved country-specific heterogeneity and provides more robust estimates of the effects of our independent variables on government spending on education across different countries.

In this model, $IMFCond_{it-1}$ retains its positive and statistically significant coefficient at the 5 percent level. Each hard IMF condition is associated with an 8.8 percentage point increase in government education spending per capita. Generally, studies examining the relationship between IMF conditionality and government social spending have mixed results (Dreher and Vaubel 2004; Babb 2005; Clements et al. 2013; Stubbs et al. 2017). However, our findings resonate with those of Clements et al. (2013), who showed that government spending on education increases as a share of total government outlays by approximately 1 percentage point in the first year of an IMF-supported programme. However, a caveat[11] is in order when interpreting this result. IMF-supported programmes do not necessarily have an independent impact on education spending for the countries in our sample. Applying the binding conditions as part of an IMF-supported programme may catalyse other channels that influence government spending, including foreign lending and aid, which can raise revenues and enhance the government's ability to engage in social spending. It is also important to note that the impact of IMF conditions on education spending is context-specific and can vary depending on the specific country and conditions. The purpose of running a fixed effects model, however, is to control for the unobserved time-invariant heterogeneity across countries that may impact education spending.

$\boldsymbol{GDPcap_{it-1}}$ is positive and statistically significant at the 5 percent level. A 1 percent increase in GDP per capita is associated with a 3.46 percentage point increase in government education expenditures per capita. This finding is consistent with a significant strand of the literature that finds a positive relationship between GDP growth and government social spending, including education (Psacharopoulos and Patrinos 2004; Nooruddin and Simmons 2006; Barro and Lee 2013; Brady and Lee 2014).

$\boldsymbol{Inflation_{it}}$ takes on a positive and statistically significant coefficient. A 1 percent increase in the inflation rate is associated with a 5.3 percentage point increase in government education spending per capita. While it is generally expected that inflation reduces social spending due to increased uncertainty and declining purchasing power by governments, the positive and significant relationship may indicate that a rising price level induces a reallocation of resources. In other words, inflation can induce MENA governments to reallocate resources towards important or politically sensitive sectors, such as education and health. Similarly, Drayton and Farquharson (2022) and (Dibeh et al. 2018) show that

high inflation levels are associated with increasing government spending on education, especially early childhood education and care.

$\boldsymbol{Urban_{it}}$ is negative and statistically significant at the 10 percent level. Specifically, a 1 percent increase in the share of the population living in urban areas is associated with a 5.6 percentage point decrease in government education spending per capita. While this finding may seem counterintuitive at first—the level of public spending on education is positively related to the size of the urban population (Chakrabarti and Zeaiter 2014; Arayssi and Fakih 2015; Jetter and Parmeter 2018)—the negative and significant relationship may be because governments would start to allocate a relatively smaller proportion of funds to education at high rates of urbanisation (Jayasuriya and Wodon 2003). Li and Piachaud (2006) argue that growth in urban areas beyond a certain limit is associated with overcrowded living conditions, higher crime rates, deteriorating health, deeper poverty and inequality, and environmental damage. Consequently, government resources may be diverted to alleviating urban-related challenges, including transportation, housing, and sanitation, leaving less funds for education spending.

$\boldsymbol{ODA_{it-1}}$ has a positive but statistically insignificant coefficient. The positive sign is consistent with other studies, which also found a positive relationship between international aid and government spending on education (Wolf 2007; Haidar 2011; Haidar 2012a; Haidar 2012b; Dreher et al. 2021), implying that ODA can provide the government with additional funds to spend on education.

As for $\boldsymbol{Conflict_{it}}$, it loses statistical significance and takes on a positive sign in Model 4, indicating a positive relationship with government education spending, which may initially seem counterintuitive. However, this finding resonates with Valente (2014), which examines the impact of violent civil conflict in Nepal on education outcomes over the period 1996–2006. The study found a positive association between conflict intensity—proxied by the number of conflict deaths—and schooling among males and females. This is partly explained by the increased political pressure in times of conflict to address its underlying causes, which may include inequality and a lack of access to education. Accordingly, governments may raise spending on education to address these causes and reduce the likelihood of future conflict.

As for the political risk indices, both government stability and law and order variables ($\boldsymbol{GovStab_{it}}$ and $\boldsymbol{LawandOrder_{it}}$, respectively) seem to be important determinants of education spending. A stable government can lead to efficient resource allocation, a positive impact on literacy rates, improved enrolment rates, enhanced productivity, and economic growth (Odionye and Odionye 2024; Shafuda and De 2020; Dibeh 2008). Furthermore, law and order play an important part in ensuring that education spending is successfully utilised, because a safe and secure atmosphere is vital for educational institutions to function optimally (Odionye and Odionye 2024).

The inverse Mills ratio, $\boldsymbol{imr_{it}}$, demonstrates a significantly negative effect (at the 5 percent level) on government education spending. This finding lends credibility to using the ratio, given its importance in controlling for the selection bias problem. As Kentikelenis et al. (2015) and Arayssi et al. (2019) point out, a negative and statistically significant coefficient on the inverse Mills ratio suggests that the unobserved variables, which raise the likelihood of participating in an IMF programme that involves conditionality, are associated with lower government expenditure on education.

As the table shows, Models 3 and 4 display differing results, both in terms of the sign of the coefficient and statistical power. These differences could be attributed to two principal factors. First, the availability of data for each fixed effects approach varies, resulting in differences in effects and statistical significance. For instance, some countries have missing values for certain years, which affect the results of either regression model. Second, the differing results can be due to the different sources of variation. On one hand, the country-fixed effects regression helps us understand the impact of IMF-linked conditionality within each specific country while controlling for time-invariant factors that may influence government education spending, such as cultural, political, or institutional factors. This

approach captures the nuances and dynamics specific to individual countries. On the other hand, the year-fixed effects regression accounts for time-specific shocks or trends affecting government education expenditures across all sample countries. For example, global economic crises, changes in international aid policies, or widespread educational reforms can influence education spending equally. Including year-fixed effects allows the model to isolate these time-variant factors, ensuring that the observed relationship between IMF conditionality and education spending remains free from external temporal influences (Wooldridge 2010; Maddah et al. 2023; Papke and Wooldridge 2023).

6. Conclusions

This study has delved into the ramifications of IMF conditionality on government education expenditure within a representative cohort of ten Middle East and North Africa (MENA) countries actively engaged in IMF programmes. To achieve this objective, it undertook an empirical macroeconomic analysis focusing on the determinants of government expenditure on education. This analysis was conducted using panel data at the country level, encompassing the period from 1990 to 2020. Employing a cross-national fixed effects regression model, the paper aims to scrutinise the impact of IMF conditionality on government education spending per capita within our designated group of MENA nations.

The findings show that IMF conditionality demonstrates a positive relationship with government education expenditures in the MENA region over the study period. The explanation we offer has to do with the fact that the application of hard IMF conditions or policy advice has a catalytic effect on donor financing such as foreign loans and grants, including for education and foreign investment.

In order to avoid ascribing the effect of unobserved factors to IMF conditionality, we account for unobserved variables by calculating the inverse Mills ratio. The decision to use the inverse Mills ratio was related to the need to avoid potential bias caused by omitted variables, especially since our sample countries were not randomly assigned to a treatment group of participants in IMF programmes in a given year. We found that the ratio was negatively associated with government education spending, implying that unobserved factors that increase the likelihood of IMF participation are linked to lower government spending on education.

An important aspect of the findings in this paper is that they indicate a departure from the IMF reputation that typically preceded it—its traditional bias towards macroeconomic stability irrespective of social costs, propagated through its policy advice based on the principles of the "Washington Consensus". This policy advice was part of the standard package of reforms promoted to crisis-ridden developing countries (Shahin 2011; Kentikelenis et al. 2016; Sherry 2017; Bitar et al. 2018). This may suggest that IMF financing arrangements in the MENA region can create more fiscal space for social spending, including education.

Suppose one agrees with the idea that education in the MENA region—or, more broadly, in the developing world—is generally regarded as an important prerequisite for achieving sustained growth, technological development, and structural transformation. In this case, our findings can be instructive for policymakers. For countries suffering from balance of payments (BoP) imbalances and participating in an IMF macroeconomic stabilisation programme, the IMF may identify specific targets for education spending (spending floors) in coordination with governments and other national actors. This would contribute more effectively to achieving SDG 4, which guarantees inclusive and equitable quality education and promotes enduring learning opportunities for all (UNGA 2015).

Despite these positive implications, the potential trade-offs between macroeconomic stability and social spending cannot be overlooked. IMF programmes emphasise fiscal austerity and stringent budgetary controls to reduce deficits and public debt, which can sometimes decrease funding for social sectors, including education (Forster et al. 2019). While these measures aim to achieve short-term macroeconomic stability, they may undermine long-term investments in human capital that are essential for sustainable economic growth. Furthermore, weak governance and limited administrative capacity in some coun-

tries complicate the effective allocation of increased education funds, potentially hindering tangible improvements in educational outcomes. Therefore, a nuanced approach is required to balance the need for economic stability with the imperative of sustaining social development, ensuring that efforts to restore macroeconomic health do not compromise social equity and long-term growth prospects in MENA countries.

This study is not without its limitations. Firstly, the availability and reliability of data across the MENA countries and the study period may vary, potentially affecting the robustness of the results. Secondly, the conditions and policies associated with IMF programmes can differ significantly between countries and over time, which may influence the observed outcomes. Despite these limitations, the findings carry important policy implications. Leveraging IMF programmes could play a crucial role in enhancing educational investment in the MENA region.

Finally, our findings provide areas for future research. A possible extension of this study could consider IMF conditionality by policy areas (e.g., fiscal policy, monetary policy and central banking, labour issues, or even institutional reforms and/or privatisation, trade and the exchange rate system, as well as revenues and tax issues, among others). This may add an extra layer of nuance to the debate about the role of international financial institutions, including the IMF and the World Bank, in spearheading economic recovery and ensuring that equity considerations are part of their lending arrangements to struggling economies.

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Appendix A

Table A1. IMF lending in the MENA region, by facility.

Country	*Facility*	*Date of Arrangement*	*Expiration Date*	*Amount Agreed*	*Amount Drawn*	*Debt Outstanding*
Algeria	**Standby Arrangement**	03-Jun-91	31-Mar-92	300,000	225,000	
	Standby Arrangement	27-May-94	22-May-95	457,200	385,200	
	Extended Fund Facility	22-May-95	21-May-98	1,169,280	1,169,280	
Djibouti	**Standby Arrangement**	15-Apr-96	31-Mar-99	8250	7272	**31,800**
	Extended Credit Facility	18-Oct-99	17-Jan-03	19,082	13,630	
	Extended Credit Facility	17-Sep-08	31-May-12	22,260	22,260	
	Rapid Credit Facility	08-May-20	12-May-20	31,800	31,800	
Egypt	**Standby Arrangement**	17-May-91	31-May-93	234,400	147,200	**13,471,983**
	Extended Fund Facility	20-Sep-93	19-Sep-96	400,000	0	
	Standby Arrangement	11-Oct-96	30-Sep-98	271,400	0	
	Extended Fund Facility	11-Nov-16	29-Jul-19	8,596,570	8,596,570	
	Rapid Financing Instrument	11-May-20	13-May-20	2,037,100	2,037,100	
	Standby Arrangement	26-Jun-20	25-Jun-21	3,763,640	3,763,640	

Table A1. *Cont.*

Country	*Facility*	*Date of Arrangement*	*Expiration Date*	*Amount Agreed*	*Amount Drawn*	*Debt Outstanding*
Iraq	**Standby Arrangement**	23-Dec-05	18-Dec-07	475,360	0	**0**
	Standby Arrangement	19-Dec-07	18-Mar-09	475,360	0	
	Standby Arrangement	24-Feb-10	23-Feb-13	2,376,800	1,069,560	
	Standby Arrangement	07-Jul-16	06-Jul-19	3,831,000	1,494,200	
Jordan	**Standby Arrangement**	26-Feb-92	25-Feb-94	44,400	44,400	**1,216,205**
	Extended Fund Facility	25-May-94	09-Feb-96	189,300	130,320	
	Extended Fund Facility	09-Feb-96	08-Feb-99	238,040	202,520	
	Extended Fund Facility	15-Apr-99	31-May-02	127,880	127,880	
	Standby Arrangement	03-Jul-02	02-Jul-04	85,280	10,660	
	Standby Arrangement	03-Aug-12	02-Aug-15	1,364,000	1,364,000	
	Extended Fund Facility	24-Aug-16	23-Mar-20	514,650	223,015	
	Extended Fund Facility	25-Mar-20	24-Mar-24	1,145,954	727,372	
	Rapid Financing Instrument	20-May-20	27-May-20	291,550	291,550	
Mauritania	**Extended Credit Facility**	09-Dec-92	25-Jan-95	33,900	33,900	**235,152**
	Extended Credit Facility	25-Jan-95	13-Jul-98	42,750	42,750	
	Extended Credit Facility	21-Jul-99	20-Dec-02	42,490	42,490	
	Extended Credit Facility	18-Jul-03	07-Nov-04	6440	920	
	Extended Credit Facility	18-Dec-06	01-Nov-09	16,100	10,310	
	Extended Credit Facility	15-Mar-10	25-Jun-13	77,280	77,280	
	Extended Credit Facility	06-Dec-17	05-Mar-21	136,160	136,160	
	Rapid Credit Facility	23-Apr-20	27-Apr-20	29,585	29,585	
	Rapid Credit Facility	23-Apr-20	27-Apr-20	66,095	66,095	
Morocco	**Standby Arrangement**	20-Jul-90	31-Mar-91	100,000	48,000	**1,499,800**
	Standby Arrangement	31-Jan-92	31-Mar-93	91,980	18,396	
	Precautionary and Liquidity Line	03-Aug-12	27-Jul-14	4,117,400	0	
	Precautionary and Liquidity Line	28-Jul-14	21-Jul-16	3,235,100	0	
	Precautionary and Liquidity Line	22-Jul-16	21-Jul-18	2,504,000	0	
	Precautionary and Liquidity Line	17-Dec-18	07-Apr-20	2,150,800	2,150,800	
Tunisia	**Standby Arrangement**	07-Jun-13	31-Dec-15	1,146,000	1,002,750	**1,559,594**
	Extended Fund Facility	20-May-16	18-Mar-20	1,952,253	1,161,713	
	Rapid Financing Instrument	10-Apr-20	15-Apr-20	545,200	545,200	
Yemen	**Standby Arrangement**	20-Mar-96	19-Jun-97	132,375	132,375	**19,500**
	Extended Credit Facility	29-Oct-97	28-Oct-01	264,750	238,750	
	Extended Fund Facility	29-Oct-97	28-Oct-01	72,900	46,500	
	Extended Credit Facility	30-Jul-10	04-Apr-12	243,500	34,790	
	Rapid Credit Facility	04-Apr-12	16-Apr-12	23,575	23,575	
	Rapid Credit Facility	04-Apr-12	16-Apr-12	37,300	37,300	
	Extended Credit Facility	02-Sep-14	01-Mar-16	365,250	48,750	

Source: IMF finances.

Appendix B

Table A2. A breakdown of IMF lending facilities by number, value, and decade (000 SDRs), 1990–2020.

Facilities	**1990–1999**		**2000–2009**		**2010–2020**		**Total**	
	#	**Value**	**#**	**Value**	**#**	**Value**	**#**	**Value**
Extended Credit Facility	*5*	402,972	*3*	44,800	*4*	822,190	***12***	**1,269,962**
Extended Fund Facility	*6*	2,197,400	*0*	0	*4*	12,209,427	***10***	**14,406,827**
Precautionary and Liquidity Line	*0*	0	*0*	0	*4*	12,007,300	***4***	**12,007,300**
Rapid Credit Facility	*0*	0	*0*	0	*5*	188,355	***5***	**188,355**

Table A2. *Cont.*

Facilities	1990–1999		2000–2009		2010–2020		Total	
	#	Value	#	Value	#	Value	#	Value
Rapid Financing Instrument	*0*	0	*0*	0	*3*	2,873,850	***3***	**2,873,850**
Standby Arrangement	*9*	1,640,005	*3*	1,036,000	*5*	12,481,440	***17***	**15,157,445**
Total	***20***	**4,240,377**	***6***	**1,080,800**	***25***	**40,582,562**	***51***	**45,903,739**

Source: IMF finances.

Appendix C

Table A3. Number of conditions associated with IMF loans, 1990–2020.

	No. of Hard/Binding Conditions	Percentage of Hard Conditions	No. of Soft/Non-Binding Conditions	Percentage of Soft Conditions	Total
Algeria	76	63.3	44	36.7	120
Djibouti	157	65.4	83	34.6	240
Egypt	154	75.5	50	24.5	204
Iraq	163	55.4	131	44.6	294
Jordan	0	0	16	100	16
Lebanon	0	0	16	100	16
Mauritania	331	52.3	302	47.7	633
Morocco	83	74.1	29	25.9	112
Tunisia	83	45.1	101	54.9	184
Yemen	177	71.1	72	28.9	249
Total	**1224**	**59.18**	**844**	**40.81**	**2068**

Source: Kentikelenis et al. (2016) and IMF finances.

Appendix D IMF Lending Facilities

Box A1. IMF lending facilities (Sherry 2017).

- ***Non-concessional lending***: loans that are subject to the IMF's market-related interest rate.

Standby arrangement (SBA): designed for countries with short-term balance of payments (BoP) problems. Carries conditionality. Duration: 12–24 months. Repayment: within 3–5 years.

Flexible credit line (FCL): designed for the purpose of crisis-prevention and crisis-mitigation. Carries no conditionality. Duration: 12–24 months. Repayment: within 3–5 years.

Precautionary and liquidity line (PLL): designed to meet liquidity needs of countries with a strong policy framework and do not need major economic reforms. Carry focused conditionality. Duration: 6–24 months. Repayment: 3–5 years.

Extended fund facility (EFF): designed for countries with medium- and longer-term BoP problems. Carries structural conditionality. Duration: 3–4 years. Repayment: 4–10 years.

Rapid financing instrument (RFI): designed to provide rapid financial assistance to countries facing urgent BoP needs. Carries conditionality. Duration: 12–24 months. Repayment: 3¼–5 years.

- ***Concessional lending***: loans designed on concessional terms to finance needs of LICs.

Extended credit facility (ECF): designed for medium-term assistance to LICs facing long-lasting BoP problems. Carries streamlined and focused conditionality; zero interest rate. Duration: 5½ years. Repayment: 10 years.

Standby credit facility (SCF): designed for LICs with short-term or potential BoP problems. Can also be provided on a precautionary basis. Carries streamlined and focused conditionality; zero interest rate. Duration 4 years. Repayment: 8 years.

Rapid credit facility (RCF): designed to provide rapid financial assistance to LICs facing urgent BoP needs. Carries conditionality, and a zero-interest rate. Duration: 5½ years. Repayment: 10 years.

Appendix E

Table A4. Hausman test for fixed versus random effects model.

		---- Coefficients ----			
		(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
IMFCond		0.0138102	0.0236216	−0.0098113	
GDPcap		0.9833122	0.8208883	0.1624239	
ODA		0.2539056	−0.2465605	0.5004661	
Inflation		−0.0114313	0.0065503	−0.0179817	
Urban		0.0116394	0.0502629	−0.0386235	
Conflict		0.1660306	−0.006831	0.1728616	
GovStab		0.0144786	0.159877	−0.015091	
LawandOrder		0.0937765	0.765443	0.172322	

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(6) =(b − B)'[(V_b − V_B)^(−1)](b − B)
=**61.50**
Prob > chi2 =**0.0000**
(V_b-V_B is not positive definite)

Notes

1 "In 2024–2025, HESI is chaired by the United Nations Department of Economic and Social Affairs (UN DESA), UN University, the UNESCO International Institute for Higher Education in Latin America and the Caribbean (IESALC), and the Sulitest Association—a non-profit organization and online platform aimed at improving sustainability literacy for all. Additional UN partners include UNESCO, UN Environment Programme, UN Global Compact's Principles for Responsible Management Education initiative, UN-HABITAT, UNCTAD, UNITAR, UN Office for Partnerships, and UN Academic Impact." https://sdgs.un.org/HESI (accessed on 1 March 2024).

2 In accordance with the MENA-OECD Initiative on Governance and Competitiveness for Development, the MENA region comprises 19 economies: Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestinian Authority, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates, and Yemen.

3 Alternatively, the compound annual growth rate (CAGR) over the period 1970–2020 has been 1.3 percent.

4 The SDR is an international reserve asset, created by the IMF in 1969 to supplement its member countries' official reserves. As of March 2016, the value of the SDR is based on a basket of five major currencies—the US dollar, the euro, the Chinese renminbi (RMB), the Japanese yen, and the British pound sterling.

5 In Lebanon, the IMF loan was structured as a currency swap, enabling the country to exchange its own currency for essential reserve currencies required for balance of payments purposes (Sherry 2017).

6 Hard conditions are of three main types: prior actions (PAs), quantitative performance criteria (QPCs) and structural performance criteria (SPCs).

7 Soft conditions are of two types: indicative targets (ITs) and structural benchmarks (SBs).

8 According to Al-Samarrai et al. (2021), the large increase in ODA for education in the MENA region was a response to emergencies in some of its countries such as Iraq, the Syrian Arab Republic and Yemen.

9 We ran the Hausman test to assess the appropriateness of choosing between fixed and random effects models. The result returned a very small *p*-value (close to 0), indicating strong evidence against the null hypothesis that the random effects model was consistent and efficient. Consequently, we used a fixed effects model, the preferred model in this case. The outcome of the Hausman test is shown in Appendix E.

10 In ascribing the number of deaths for a country in the year 2020, we used the mean imputation method to impute averages to the missing observation. As a consequence, a dummy value of 1 is given to all countries for the year 2020.

11 It is also important to note that the impact of IMF conditions on education spending is context-specific and can vary depending on the specific country and conditions. The purpose of running a fixed effects model, however, is to control for the unobserved time-invariant heterogeneity across countries which may impact education spending.

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