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The Impact of Social Spending on Inclusive Growth in Arab Countries: An Econometric Study for the Period 2000-2022 using panel data model.

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ABSTRACT

This study investigates the impact of economic growth, health spending, and education spending on inclusive growth using panel data from 2000 to 2022. Employing a fixed effects regression model, the findings show that GDP has a significant positive effect on HDI, while health and education spending do not exhibit statistically significant impacts. The results highlight the importance of economic growth for human development but suggest that social spending alone is insufficient without effective allocation. Data variability and country-specific factors also influence outcomes. The study emphasizes the need for targeted and efficient policy interventions to enhance human development

1. Introduction

Arab countries face persistent challenges in achieving inclusive growth, despite ongoing efforts to expand social spending. Public social expenditure in the region remains well below the global average, with most countries allocating around 8% of GDP to health, education, and social protection, compared to 20% worldwide. This limited investment is compounded by fiscal pressures, inefficient allocation of resources, and a heavy focus on current expenditures such as wages and transfers, rather than capital investments that could drive productivity and long-term growt. Moreover, gaps in coverage and quality of services, particularly for women, youth, informal workers, and other vulnerable groups, continue to hinder progress toward sustainable development and social equity.

Recent studies and policy reports highlight several solutions to these problems. First, there is a strong call for "spending smarter" by improving the efficiency and targeting of social expenditures, rather than simply increasing budgets, This involves redirecting funds toward sectors with the highest returns, such as early childhood education and preventive healthcare, and ensuring that benefits reach the most vulnerable populations. Second, enhancing public financial management and monitoring systems is recommended to ensure that resources are allocated effectively and outcomes are tracked transparently. Third, integrating social protection schemes and expanding coverage to informal workers and marginalized groups is seen as vital for reducing poverty and inequality, especially in

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the wake of the COVID-19 pandemic and other shocks. Fourth, fiscal reforms, including the adoption of progressive and equitable tax systems, are suggested to create the fiscal space necessary for sustainable social investment. Finally, strengthening institutional quality and governance is emphasized as a way to translate social spending into improved socioeconomic outcomes.

1.1Research Importance

This study is important because it addresses a critical gap in understanding how social spending can be optimized to foster inclusive growth in the Arab context. With mounting demographic pressures, youth unemployment, and rising inequality, policymakers urgently need evidence-based strategies to ensure that limited public resources generate the greatest social and economic returns.

1.2Research Aim/Objectives

The main aim is to empirically assess the impact of social spending on inclusive growth across Arab countries. The objectives are to:

- Measure the effect of overall and sectoral social spending on inclusive growth.
- Evaluate the efficiency and equity of social expenditure. .

1.4Research Questions

Main question: How does social spending influence inclusive growth in Arab countries?

- Which types of social spending (health, education, social protection) are most effective in promoting inclusive growth?
- To what extent do efficiency, equity, and institutional quality affect the impact of social spending on inclusive growth?

1.5Research Motivations (Contextual and Theoretical)

Contextually, the Arab region is under pressure to achieve the Sustainable Development Goals (SDGs) amid fiscal constraints and multiple crises, making it crucial to identify the most impactful spending strategies178. Theoretically, the study contributes to debates on the mechanisms linking public expenditure, human capital, and inclusive growth, and the conditions under which these effects are maximized10.

1.6 Hypotheses of the study

Social spending has a positive impact on social growth in Arab countries..

2. Literature review:

Inclusive growth has become a central goal for policymakers, especially in regions facing persistent inequality and social challenges. In the Arab countries, social spending is often seen as a key lever to promote equitable development and reduce poverty. However, the effectiveness of such spending in driving inclusive growth remains debated, given fiscal constraints and varying policy priorities. Recent global shocks, including the COVID-19 pandemic, have further highlighted the importance of robust social investment. Consequently, understanding the relationship between social spending and inclusive growth in the Arab context is both timely and policy-relevant. This literature review explores existing research on this topic, focusing on empirical findings, methodological approaches, and regional insights.

Several studies highlight the positive role of social spending in promoting inclusive growth. For instance, research on developing Asia finds that targeted government spending on health and education significantly enhances the likelihood of inclusive growth episodes and helps reduce income inequality(Clements, Gupta, and Jalles n.d.). Similarly, a study covering 38 OECD countries reports that while social welfare spending can slow economic growth if not

managed well, it remains crucial for addressing inequality and supporting vulnerable groups(Smykova et al. 2024). In Latin America, public spending and international trade are found to directly influence inclusive growth, with a 1% increase in public expenditure linked to a 0.1% rise in inclusive growth(Angulo-Bustinza et al. 2023). These findings underscore the importance of both the amount and the efficiency of social spending in achieving sustainable development outcomes.

The Arab region faces unique challenges in leveraging social spending for inclusive growth. According to the IMF, social spending in the Middle East and Central Asia is generally lower than global averages, with only about 8% of GDP devoted to health, education, and social protection, compared to 20% globally(Anon 2021a). This underinvestment is partly due to high military spending and energy subsidies, which crowd out social expenditures. Moreover, the region struggles with issues such as youth unemployment, poverty, and inequality, which are exacerbated by limited fiscal space and external shocks(Anon 2021a). The Social Expenditure Monitor (SEM) developed by ESCWA, UNDP, and UNICEF provides a framework for assessing the adequacy, equity, and efficiency of social spending in Arab countries, highlighting significant gaps in coverage and effectiveness(Commission for Western Asia n.d.).

Panel data models have been widely used to analyze the determinants of economic growth and the impact of social spending in Arab countries. One study employing panel data from ten Arab countries between 1990 and 2015 finds a direct and positive impact of public social spending on human development outcomes, including growth, education, and life expectancy(Sarangi, von Bonin, and Bonin 2017). Another panel data study across eight Arab countries identifies government spending, along with investment and labor force size, as key drivers of economic growth, though the relative impact of social spending varies across countries(2023 على). Research focusing on Saudi Arabia specifically links increased education expenditure to higher rates of inclusive growth, suggesting that efficient spending in this sector is particularly impactful(Abdennour and Alwagdani 2017). These studies emphasize the value of panel data approaches in capturing both temporal and cross-country variations in policy effects.

Social protection programs, including cash transfers and social insurance, are found to have the largest and most statistically significant impact on human development indicators such as the Human Development Index (HDI). In the Arab region, however, social protection coverage remains limited, especially for informal workers and marginalized groups(Anon n.d.). The effectiveness of these programs is often hampered by insufficient targeting, limited budget allocations, and weak institutional capacity. Nevertheless, case studies from countries like Bahrain and Armenia illustrate that well-designed and adequately funded social protection measures can substantially reduce poverty and inequality(Anon 2021b).

Efficiency in social spending is a recurring concern in the literature. Many Arab countries allocate a large share of their social budgets to current expenditures, such as wages and transfers, leaving little for capital investments that could yield long-term benefits(Anon n.d.). Furthermore, spending is often not well-targeted to the most vulnerable populations, limiting its impact on inclusive growth. The SEM framework advocates for smarter spending-improving both the allocation and monitoring of social expenditures to maximize their developmental impact(Commission for Western Asia n.d.). Enhancing the equity of social spending, by prioritizing marginalized groups and addressing gender disparities, is also seen as essential for achieving inclusive growth.

Institutional quality and governance play a critical role in determining the effectiveness of social spending. Studies show that strong governance can amplify the positive effects of social spending on income distribution and inclusive growth, while weak institutions may lead to inefficiencies and limited impact(Aslam, Naveed, and Shabbir 2021). In the Arab context, improving public finance management and strengthening accountability mechanisms are identified as key steps to ensure that social spending translates into tangible socioeconomic gains(Sarangi et al. 2017).

Despite growing interest in the link between social spending and inclusive growth in the Arab countries, several gaps persist in the literature. First, there is a lack of comprehensive, high-quality data on social spending and its composition across the region, which hampers robust empirical analysis(Sarangi et al. 2017) Second, most existing studies focus on aggregate spending, with limited attention to the efficiency, targeting, and sectoral allocation of funds(niranjan saranji 2022). Third, the interplay between social spending, institutional quality, and inclusive growth outcomes remains underexplored, especially using advanced panel data techniques that can account for endogeneity and heterogeneity(Angulo-Bustinza et al. 2023). Finally, few studies provide comparative analyses across different Arab countries, considering their diverse economic structures and policy environments. Addressing these gaps would provide valuable insights for designing more effective social spending policies to foster inclusive growth in the Arab world.

3. the data sources and methodology

We will measure the relationship between Social spending and inclusive growth through several steps: describing and coding these variables and data sources for their collection, then estimating the model using the least squares method, then Haussmann's test.

4. 3.1 The model used :

$hdi_{it} = b0 + b1 gdp_{it} + b2\ sh_{it} + b3\ se_{it} + \sigma t + \varepsilon_{it}$.

table (1): Variables used in the study and their sources

variable symbol	variable name	The study period	Study data sources
hdi	The dependent variable is Human Development Index	2000-2022	United nations development program (undp)
gdp	Economic growth	2000-2022	Data world bank
sh	Health spending	2000-2022	Data world bank
se	Education spending	2000-2022	Data world bank

Source: Prepared by the researcher

Table (2): Statistical description of the study variables

	HDI	**GDP**	**SH**	**SE**
Mean	0.638275	3.213108	2.363832	4.301391
Median	0.595000	3.517405	2.245907	4.187740
Maximum	0.937000	86.82675	6.187579	9.661630
Minimum	0.424000	-50.33852	0.246812	1.012180
Std. Dev.	0.166571	8.510242	1.083868	1.725216
Skewness	0.369778	1.518646	0.612792	0.233347
Kurtosis	1.692050	34.13532	3.125782	2.313661
Jarque-Bera	38.94490	16717.94	25.99367	5.482222
Probability	0.000000	0.000000	0.000002	0.064499
Sum	264.2460	1317.374	971.5349	821.5656
Sum Sq. Dev.	11.45904	29621.50	481.4420	592.0376

Observations	414	410	411	191

Source: Prepared by the researcher based on the results of eviews 12

The descriptive statistics reveal important characteristics about the variables in the study. The Human Development Index (HDI) has a mean of 0.638 and a median of 0.595, indicating most countries in the sample are at a moderate level of human development. Economic growth (GDP) shows substantial variability, with values ranging from -50.34% to 86.83% and a high standard deviation of 8.51, suggesting the presence of significant outliers and volatility across the sample. Both health spending(SH) and education spending (SE) display more stable distributions, but education spending has fewer observations, which may affect the reliability of results involving this variable.

Table (3): The correlation between the variables

	HDI	**GDP**	**SH**	**SE**
HDI	1	-0.0969542	0.21111767	-0.2994656
GDP	-0.0969542	1	-0.3607450	-0.0620744
SH	0.21111767	-0.3607450	1	0.35383680
SE	-0.2994656	-0.0620744	0.35383680	1

Source: Prepared by the researcher based on the results of eviews 12

The correlation matrix provides insights into the relationships between the key variables in the study. The Human Development Index (HDI) shows a weak negative correlation with GDP (-0.097), suggesting that higher economic growth rates are not strongly associated with higher human development in this sample. HDI has a modest positive correlation with health spending (0.211), indicating that increased health spending tends to be linked with better human development outcomes. Conversely, HDI is moderately negatively correlated with education spending (-0.299), which is somewhat unexpected and may warrant further investigation into the context or data quality.

Looking at the relationships among the independent variables, GDP is moderately negatively correlated with health spending (-0.361), implying that countries with higher economic growth may allocate a smaller share of resources to health. There is a positive correlation between health spending and education spending (0.354), suggesting that countries investing more in health also tend to invest more in education. Overall, the correlations are generally low to moderate, indicating some relationships but not strong multicollinearity, which is favorable for regression analysis.

3.2 Model Estimation:

To show the relationship between social spending indicators and Human développement index, we estimate the model using three models: Pooled Regression Model, Fixed Effects Model, and Random Effects Model, and based on Eviews 12 The following results were obtained:

Table (4): Results of model parameters estimated using the three models

independent variables	**Pooled Regression Model**	**Fixed Effects Model**	**Random Effects Model**

GDP	0.00029(0.90)	0.001 (0.03)	0.001(0.03)
SE	-0.0391(0.0000)	-0.001(0.76)	-0.002(0.47)
SH	0.0614(0.0000)	-0.007(0.18)	-0.005 (0.31)
C	0.6271(0.0000)	0.62 (0.0000)	0.65 (0.000)
R-squared	0.204669	0.959898	0.059360
Adjusted R-squared	0.191910	0.955701	0.044270
Prob(F-statistic)	0.0000000	0.0000000	0.009421

Source: Prepared by the researcher based on the results of eviews 12

3.3 Hausman Test:

We conduct the Hausman test to find out which of the effects is more appropriate to estimate the model, whether the fixed effects model or the random effects model, and to determine which of the two models is chosen, we put the following hypotheses:

H0: is the null hypothesis when the random effects model is appropriate.

H1: is the alternative hypothesis when a fixed-effects model is appropriate.

Table(6): Hausman's test results

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	**Chi-Sq Statistic**	**Chi-Sq. d.f**	**Prob.**
Cross-section random	11.748883	3	0.0083

Source: the results of eviews 12

We note in the table through the results of the Hausman test that the probability alue of the test is equal to 0.0083, which is less than 5%, which is significant, and from it we reject the null hypothesis H0 and accept the alternative hypothesis, which confirms that the model more suitable for our study is the fixet effects model.

3.4-interpreting the results of estimating the model using the fixet effects model:

We estimate the model parameters using the fixet effects model, after the results of the Hausman test, which confirmed this, through the method of ordinary least squares, and the following table shows that:

independent variables	Fixed Effects Model
GDP	0.001 (0.03)
SE	-0.001(0.76)
SH	-0.007(0.18)
C	0.62 (0.0000)
R-squared	0.959898
Adjusted R-squared	0.955701
Prob(F-statistic)	0.0000000

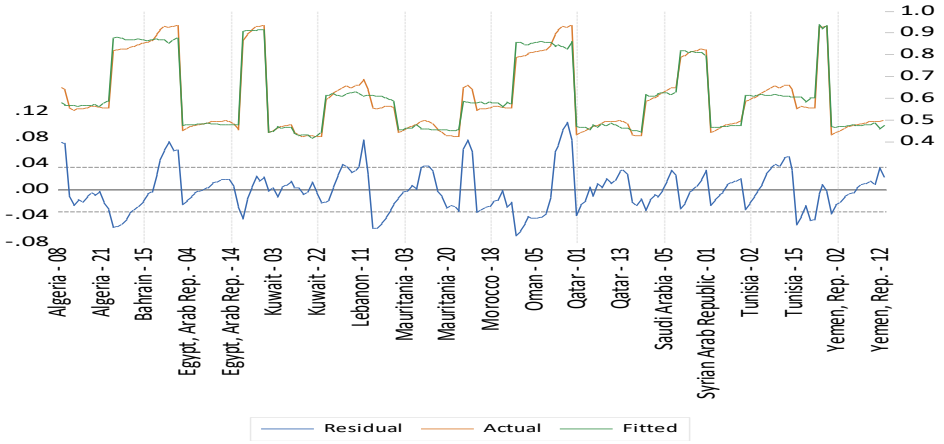
Source: Prepared by the researcher based on the results of eviews 12

After we concluded that the fixet effects model is the appropriate model, we can write it as follows:

HDI = 0.626640429268 + 0.00132163118678*GDP - 0.00127091958432*SE - 0.00718711617805*SH.

Through the results of the model parameters estimated by the fixet effects model, the model is significant because the F-statistic value is 0.00000.

Fig.(01): Graphic representation of current and estimated values.



Source: the results of eviews 12

The chart displays the actual versus fitted values of the Human Development Index (HDI) for various countries and years, along with the corresponding residuals. The orange line represents the actual HDI values, while the green line shows the fitted values predicted by the regression model. The blue line illustrates the residuals-the differences between the actual and fitted values.

Statistically, the fitted values closely track the actual HDI values for most countries, indicating that the model captures the general pattern of human development across the sample. However, the residuals

fluctuate above and below zero, with some countries and years showing larger discrepancies. These deviations suggest that while the model fits well on average, there are specific instances where it either overestimates or underestimates HDI. The presence of both positive and negative residuals, without a clear pattern of bias, suggests that the model does not systematically over- or under-predict HDI, but some country-specific or time-specific factors are not fully captured.

Economically, the close alignment between actual and fitted HDI values implies that the main drivers included in the model-economic growth, health spending, and education spending-explain much of the variation in human development across the observed countries and periods. However, the existence of notable residuals for certain countries points to the influence of additional factors not included in the model, such as institutional quality, governance, or external shocks, which may affect development outcomes.

For policymakers, these findings underscore the importance of not only focusing on macroeconomic and social spending indicators but also considering country-specific contexts and potential structural differences. While the model provides a strong overall fit, targeted interventions and more nuanced policy measures may be necessary to address the unique challenges faced by countries where residuals are consistently high or low. This approach can help ensure that social and economic policies are more effective in promoting inclusive and sustained human development.

3.6Interpretation of model estimation results with a fixet effects model:

The fixed effects regression results provide a nuanced view of how economic growth and social spending influence human development in the studied countrie The model reveals that GDP has a small but statistically significant positive effect on the Human Development Index (HDI), indicating that increases in economic growth are associated with modest improvements in human development. This finding aligns with economic theory, which suggests that higher national income can enhance living standards and access to essential services, ultimately supporting better development outcomes.

In contrast, both education spending (SE) and health spending (SH) display negative coefficients, but neither is statistically significant. This suggests that, after accounting for country-specific factors, variations in social spending alone do not have a direct and measurable impact on HDI within the observed period. Several factors could explain these results: the effects of social spending may take time to materialize, the efficiency and targeting of expenditures may vary, or other institutional and contextual variables not included in the model may play a more decisive role in shaping human development outcomes.

Overall, the analysis highlights that while economic growth remains a key driver of human development in the sample, simply increasing social spending is not sufficient to guarantee improvements in HDI. Policymakers should focus not only on the amount allocated to health and education but also on the effectiveness and strategic use of these resources. Enhancing the quality of spending, improving governance, and addressing structural challenges may be necessary to ensure that investments in social sectors translate into tangible gains in human development.

5. Conclusion

This study set out to examine the effects of economic growth, health spending, and education spending on human development, as measured by the Human Development Index (HDI), across a panel of countries from 2000 to 2022. The fixed effects regression results reveal that GDP has a statistically significant, albeit modest, positive impact on HDI, highlighting the continued importance of economic growth as a driver of human development. In contrast, the coefficients for education and health spending were negative and statistically insignificant, suggesting that increases in social spending alone do not automatically lead to improvements in human development outcomes.

The statistical analysis shows that the model fits the data well overall, with actual and fitted values of HDI closely aligned for most observations. However, the presence of notable residuals in certain countries and years indicates that other factors-such as the efficiency of spending, institutional quality, or unique country-specific circumstances-may also play a crucial role in shaping development outcomes. These findings imply that while economic growth is necessary, it is not sufficient on its own, and the effectiveness of social spending depends largely on how resources are allocated and managed.

In summary, the results underscore the need for policymakers to focus not only on increasing the levels of social spending but also on improving the quality and targeting of these expenditures. Tailored policy approaches that address country-specific challenges and enhance the efficiency of resource use are essential for translating economic and social investments into tangible gains in human development.

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