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## Article

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Economies

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*Suggested Citation:* Abdelkawy, Nagwa Amin (2024) : Diversification and the resource curse: An econometric analysis of GCC countries, *Economies*, ISSN 2227-7099, MDPI, Basel, Vol. 12, Iss. 11, pp. 1-29,  
<https://doi.org/10.3390/economies12110287>

This Version is available at:

<https://hdl.handle.net/10419/329214>

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## Article

# Diversification and the Resource Curse: An Econometric Analysis of GCC Countries

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**Abstract:** This research explores the effects of significant global economic shocks, such as the 2008 Global Financial Crisis and the 2020 COVID-19 pandemic, on GDP growth in the Gulf Cooperation Council (GCC) nations. Employing a dynamic generalized method of moments (GMM) model, the analysis highlights the strong momentum effect of lagged GDP growth, where past performance plays a critical role in shaping current economic outcomes. The findings also reveal that natural resources continue to positively influence short-term growth, but with diminishing returns over time, supporting the resource curse hypothesis and underscoring the need for broader structural reforms to ensure long-term sustainability. In addition, the results show that external investments flowing into the country, trade balance, and inflation emerge as key drivers of economic growth. While moderate inflation is positively associated with economic expansion, unemployment exerts a significant negative effect on GDP growth, particularly in models that account for country-specific characteristics. This emphasizes the need for labor market reforms to improve employment rates and support sustainable development. The role of gross capital formation, particularly in both the dynamic GMM and random effects models, further underscores the importance of strategic domestic investment, especially during periods of global disruption. These findings emphasize the critical need for economic diversification in the GCC. Policymakers should focus on attracting foreign investment, managing inflation, enhancing human capital, and boosting domestic investment to mitigate the adverse effects of the resource curse and secure sustainability. While market capitalization and oil rents may stimulate short-term growth, their long-term sustainability remains uncertain without greater diversification. Both external and domestic investments emerge as critical drivers of long-term growth, while persistent challenges such as inflation and unemployment continue to pose risks to economic stability. The study highlights the need to reduce reliance on oil and leverage human capital to build more resilient economies capable of adapting to future challenges. By offering dynamic, empirical insights into the balance between resource reliance and sustainable growth, this research adds valuable insights to the policy discussion on economic diversification in the GCC. Policymakers are urged to prioritize FDI, inflation management, domestic capital formation, and human capital development to mitigate vulnerabilities and ensure sustainable economic growth in the face of ongoing global uncertainties.



**Citation:** Abdelkawy, Nagwa Amin. 2024. Diversification and the Resource Curse: An Econometric Analysis of GCC Countries. *Economies* 12: 287. <https://doi.org/10.3390/economies12110287>

Academic Editor: George R. G. Clarke

Received: 14 September 2024

Revised: 18 October 2024

Accepted: 23 October 2024

Published: 25 October 2024



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**Keywords:** economic resilience; diversification; resource dependency; GCC countries; financial markets; oil rents; dynamic panel data; sustainable growth

## 1. Introduction

The Gulf Cooperation Council (GCC) countries, endowed with vast oil reserves, have long relied on these resources to fuel economic growth and improve living standards. However, this heavy dependence on oil revenues has made these economies particularly vulnerable to the volatility of global oil prices, underscoring the critical need for diversification to ensure sustainable, long-term growth. The GCC's reliance on oil has been characterized by what is commonly referred to as the resource curse—a phenomenon where resource-rich countries often experience slower economic development, institutional

weaknesses, and limited diversification due to the overwhelming focus on natural resource extraction. Despite numerous initiatives aimed at reducing their reliance on oil, the GCC countries still face significant challenges in achieving a more diversified and resilient economic structure.

This study explores the complex nexus between market capitalization, oil dependency, and key socio-economic factors in the GCC countries from 2000 to 2022. Specifically, it aims to answer the following research question: How do market capitalization, oil rents, and socio-economic factors—including foreign direct investment (FDI) and gross capital formation (GCF)—interact to influence GDP growth in these oil-dependent economies?

The study is driven by the following hypotheses:

**Hypothesis 1.** *Market capitalization initially drives economic growth but exhibits diminishing returns over time if not supported by broader structural reforms.*

**Hypothesis 2.** *Oil rents, while contributing to short-term GDP growth, constrain long-term economic expansion, illustrating the effects of the resource curse. The resource curse theory posits that oil dependency leads to the underdevelopment of other sectors, limits innovation, and exacerbates economic volatility.*

**Hypothesis 3.** *Foreign direct investment and gross capital formation, along with socio-economic factors such as human capital development, inflation, and unemployment, play pivotal roles in driving sustainable, long-term economic growth.*

To rigorously test these hypotheses, the study employs advanced econometric techniques, particularly the dynamic GMM model, which allows for a nuanced analysis of both the immediate and delayed effects of market cap, oil rents, both external and domestic investments, and socio-economic factors on GDP growth. This dynamic approach is particularly suited to capturing the evolving nature of economic growth in resource-dependent economies like those in the GCC. It also provides a framework for understanding how the resource curse manifests in the GCC and affects the long-term sustainability of oil-driven growth.

The results of this study reveal that while market capitalization and oil rents provide short-term boosts to GDP growth, their long-term sustainability is limited without comprehensive reforms that address the structural issues posed by oil dependency. Consistent with the resource curse theory, the continued reliance on oil rents hinders broader economic development, as it stifles innovation, reduces the competitiveness of non-oil sectors, and increases economic volatility. External and domestic investments emerge as key drivers of sustainable growth, highlighting the importance of external investments and domestic capital formation in reducing dependency on oil revenues. Additionally, inflation and unemployment are shown to be significant challenges, emphasizing the need for effective policies to manage these issues and foster a more resilient economy.

By analyzing the short- and long-term impacts of market capitalization, oil rents, and other socio-economic variables, this research offers valuable insights into strategies that can help policymakers design more balanced and diversified economic systems in the GCC. These insights align with the region's long-term development visions, which seek to escape the resource curse by transitioning towards a more diversified, innovation-driven economy.

## 2. Literature Review

Economic diversification is essential for oil-dependent economies like those in the GCC to mitigate the risks associated with oil price fluctuations and achieve sustainable growth. The 'resource curse' theory, outlined by [Sachs and Warner \(2001\)](#), describes how over-reliance on natural resources can stifle broader economic development. This happens because dependence on one resource limits innovation, economic diversification, and institutional growth, creating a cycle of vulnerability to market shifts. GCC countries, heavily reliant on oil, are particularly exposed to this risk, making diversification an imperative

for their long-term economic health. Diversification strategies are key to reducing macroeconomic volatility and building resilience against external shocks. [Van der Ploeg \(2011\)](#) argues for transitioning from oil-dependent economic structures to more varied and diversified models, highlighting that this shift helps reduce vulnerability to global oil market fluctuations. The [World Bank \(2022\)](#) supports this view, emphasizing that economies reliant on natural resources need to expand into non-oil sectors like manufacturing and services to stabilize and sustain long-term growth. These sectors can provide more consistent economic output, shield countries from the volatility of resource markets, and pave the way for broader economic stability.

Human capital development and business dynamism are critical drivers of successful diversification. A well-educated, skilled workforce is crucial for expanding into non-oil industries such as technology, healthcare, and renewable energy. Countries that invest in their human capital—through education, training, and healthcare—are better positioned to transition toward non-resource-based economies. For example, Oman has focused on enhancing education and workforce capabilities to support its economic diversification efforts, while Indonesia's human capital investments have facilitated growth in its manufacturing and service sectors. These case studies demonstrate that strengthening human capital is essential for reducing dependency on a single resource and fostering broader economic growth.

Innovation and entrepreneurship further accelerate diversification efforts. [Albassam \(2015\)](#) points out that fostering a culture of innovation is vital for GCC countries as they transition from oil-based economies. Encouraging entrepreneurship enables the development of new industries and technologies, which are necessary for creating a diverse and competitive economy. The GCC's long-term strategic plans, such as Saudi Arabia's Vision 2030, focus on reducing oil dependence by promoting investment in emerging sectors like renewable energy, healthcare, education, and technology. By supporting entrepreneurs and small and medium-sized enterprises (SMEs), these plans aim to create a more dynamic and innovative economy capable of generating sustainable growth.

This shift is particularly critical for GCC economies, which face the challenge of balancing current oil revenues with the need to invest in future industries. Vision 2030 and similar strategies reflect the understanding that sustained economic growth requires more than just oil exports—it requires a diversified economic base supported by skilled labor, innovation, and a robust business environment. By creating conducive conditions for new industries to flourish and reducing reliance on oil, the GCC countries are working to ensure a more resilient economic future.

### *2.1. Financial Markets and Economic Expansion*

The relationship between financial market development and economic growth is well-documented, with market capitalization acting as a key indicator of a country's financial maturity. Well-developed financial markets facilitate efficient capital allocation, which in turn drives productivity and fosters long-term economic expansion. [Levine and Zervos \(1998\)](#) argue that when financial markets function effectively, they help guide investments into productive areas, thereby promoting overall economic growth. This makes financial market development a crucial aspect of economic strategy for countries seeking sustained growth. Recent studies further confirm this relationship in emerging markets. [Osaseri and Osamwonyi \(2019\)](#) demonstrate that stock market development has a significant positive impact on economic growth in BRICS countries, reinforcing the idea that financial maturity plays a vital role in facilitating growth. These findings align with the economic goals of GCC countries, where financial market development could similarly support diversification efforts by providing capital for non-oil sectors, promoting long-term economic stability.

However, the growth of financial markets must be paired with strong regulatory frameworks to ensure stability and prevent potential risks. [Naceur and Ghazouani \(2007\)](#) emphasize that in regions such as the Middle East and North Africa (MENA), the expansion of financial markets does not always directly contribute to economic growth, especially in

environments with weak regulatory oversight. Inadequately regulated financial systems can lead to market instability, as shown by [Kaminsky and Schmukler \(2003\)](#), who highlight that financial liberalization, when combined with weak regulatory oversight, may introduce short-term instability. [Demirgüç-Kunt et al. \(2013\)](#) similarly warn that rapid financial market growth, if left unchecked in weak regulatory settings, can lead to economic instability, demonstrating the importance of sound governance in maintaining financial stability. In the context of the GCC, where economies are working toward diversification, financial market development plays an especially critical role. [Grassa and Gazdar \(2014\)](#) provide empirical evidence showing that robust financial systems are vital in supporting economic diversification strategies in resource-dependent economies like those in the GCC. Well-functioning financial markets supply the capital and liquidity necessary for developing non-oil sectors, helping to reduce the reliance on oil revenues. These markets also attract foreign investment, further bolstering economic growth and helping the GCC countries transition to more sustainable, diversified economies.

Ensuring that financial market growth is supported by strong regulatory frameworks is essential for GCC countries aiming to use financial development as a tool for diversification. As the region seeks to expand beyond oil, effective financial markets will be instrumental in funding the growth of new sectors and supporting long-term economic stability.

## 2.2. The Influence of Oil Rents on Economic Growth

While oil rents have been a major source of revenue for GCC economies, they present significant challenges to economic diversification. The resource curse theory, as outlined by [Sachs and Warner \(2001\)](#), suggests that countries rich in oil often experience slower economic growth due to the crowding out of other productive sectors. This phenomenon occurs as oil revenues dominate the economy, leaving little room for the development of non-oil sectors like manufacturing or services. [Fuinhas et al. \(2015\)](#) reinforce this argument, showing that oil rents tend to depress economic growth in both the short and long term, reinforcing the notion that oil wealth, while lucrative in the short term, often hinders sustainable growth. This highlights the critical need to reduce dependency on oil rents and promote economic diversification to build more resilient economies.

Effective governance is a key factor in mitigating the negative effects of oil dependency. [Matallah and Matallah \(2016\)](#) emphasize that governance reforms are essential for overcoming the resource curse, particularly in oil-rich economies. Strong governance ensures that oil wealth is used strategically to promote long-term economic diversification and reduce the risks associated with oil price fluctuations. By improving transparency, accountability, and regulatory frameworks, governance reforms can help guide oil-dependent countries towards more balanced and sustainable growth.

[Fuinhas et al. \(2015\)](#) expand on this by demonstrating that while oil consumption can boost economic growth in the short run, oil rents depress growth in the long run. This aligns with the broader resource curse theory, which explains how the over-reliance on oil revenues can crowd out the development of other industries, ultimately restricting broader economic development. The study underlines the importance of moving away from oil dependency and implementing diversification strategies to counter the long-term negative impacts of oil rents on economic performance.

[Grassa and Gazdar \(2014\)](#) offers a nuanced view of the rentier state and resource curse narratives, particularly regarding the GCC countries. He argues that while the resource curse framework predicts detrimental effects of oil rents on economic growth, the GCC countries have not experienced the full extent of these negative consequences. They contend that the GCC countries, unlike many other oil-dependent nations, have managed to mitigate some of the worst effects of the resource curse, potentially due to better governance and more strategic use of oil revenues. This suggests that while oil rents have historically dominated their economies, the GCC's experience with the resource curse has been comparatively less damaging.



Despite these relatively positive outcomes, the fundamental challenge remains that continued reliance on oil rents restricts long-term economic growth potential. The GCC countries must prioritize economic diversification to secure sustainable development. As emphasized by [Matallah and Matallah \(2016\)](#), governance reforms are crucial to ensuring that oil revenues are invested strategically in sectors that promote diversification and economic resilience, thereby reducing the risk of future volatility and enabling sustainable growth across the region.

### 2.3. Socio-Economic Factors and Economic Growth in the GCC

#### 2.3.1. Inflation and Economic Growth

Inflation can adversely impact economic growth by eroding purchasing power and distorting price signals. [Chimobi \(2010\)](#) highlights that inflation can destabilize long-term economic prospects, particularly in oil-dependent economies like the GCC. Moderate inflation; however, can support growth, as noted by [Khan and Ssnhadji \(2001\)](#), who identify inflation thresholds (7–11%) that are conducive to growth in developing economies.

Additionally, [Barro \(1996\)](#) emphasizes that inflation can have a detrimental effect on economic growth, with an increase of 10 percentage points in inflation leading to a reduction in real per capita GDP growth by 0.2–0.3 percentage points annually. Inflation also negatively impacts the investment-to-GDP ratio, reducing it by 0.4–0.6 percentage points. Although the short-term effects may seem modest, over a 30-year period, sustained inflation can lower real GDP by 4–7%, underscoring the importance of price stability for long-term economic prosperity.

In the context of the GCC, where economies are transitioning towards diversification, managing inflation is crucial. The effects of inflation on investment and growth, as described by [Barro \(1996\)](#) and [Fischer \(1993\)](#), are particularly relevant as the GCC countries work to attract foreign and domestic investment into non-oil sectors. Controlling inflation can create a more stable economic environment that encourages long-term investment, fosters human capital development, and supports innovation, all of which are essential for achieving sustainable growth.

#### 2.3.2. Unemployment and Economic Growth

Unemployment remains a significant challenge in the GCC, particularly due to labor market rigidities. High unemployment signals underutilization of human capital, which hampers economic efficiency. [Fasano and Goyal \(2004\)](#) emphasize the importance of labor market flexibility and aligning education with market needs to address unemployment and support sustainable growth.

Economic growth in the GCC is closely tied to employment trends, with increasing attention being paid to how growth affects job creation. [Ben-Salha and Zmami \(2021\)](#) examine the employment intensity of growth across six GCC countries from 1970 to 2017. Their study reveals that employment elasticities (the responsiveness of employment to growth) range between 0.4 and 0.6, showing an upward trend over time. This indicates: economic growth has had a moderate but growing impact on employment generation in the GCC; long-term employment intensity is positively influenced by factors, such as trade liberalization; the increasing contribution of the services sector to GDP, growth in the working-age population, and urbanization. However, macroeconomic volatility exerts a negative impact on employment intensity over time. In the short term, trade liberalization and natural resource rents show adverse but relatively weak effects on job creation.

[Blanchard and Wolfers \(2000\)](#) discuss the significant role that external shocks and institutional frameworks play in shaping economic outcomes, particularly in the context of unemployment in European economies. Their analysis highlights how adverse shocks, such as oil price volatility, coupled with inadequate institutional responses, can exacerbate unemployment rates and hinder long-term economic growth. This perspective is particularly relevant to the GCC economies, which face similar vulnerabilities due to their reliance on oil revenues. Just as Blanchard and Wolfers argue for the importance of robust

institutions in mitigating these effects, GCC countries must strengthen their institutional frameworks to manage the economic instability brought about by external shocks, ensuring more sustainable economic development.

These findings highlight the importance of implementing policies that not only promote economic growth but also tackle the underlying structural challenges affecting employment generation. This analysis highlights the importance of economic diversification in the GCC, as sectors such as services contribute more to job creation compared to oil-dominated sectors. For the GCC countries to reduce their reliance on oil rents and foster inclusive growth, it is essential to develop policies that encourage service sector expansion, enhance trade liberalization, and manage urbanization effectively. By doing so, they can generate more employment opportunities, which is critical to the region's socio-economic stability.

### 2.3.3. Human Development and Economic Resilience

Human development, as measured by the Human Development Index (HDI), plays a critical role in influencing economic growth, particularly in resource-dependent economies like those in the GCC. [Grubaugh \(2015\)](#) demonstrates that economic growth, when viewed through the lens of HDI rather than traditional GDP per capita, provides a more comprehensive understanding of a nation's development. His findings suggest that while population growth and initial GDP are important drivers, HDI captures broader aspects of growth by incorporating life expectancy, education, and living standards. This approach indicates that for sustainable growth, GCC countries must focus not just on GDP expansion, but also on improving human development outcomes, which are essential for long-term stability and prosperity.

Human capital development is particularly important in the GCC, as highlighted by [Abdeldayem et al. \(2021\)](#). Their study reveals that the low levels of investment in research and development (R&D) and the limited proportion of workers engaged in knowledge-intensive sectors are major obstacles to achieving innovation-led growth. This creates a barrier to economic diversification, as the lack of focus on human capital development inhibits the GCC from achieving a competitive edge in non-oil sectors.

Public governance also plays a critical role in determining the success of human capital development in driving economic growth. [Al-Naser and Hamdan \(2021\)](#) find that governance indicators—such as regulatory quality and government effectiveness—are significantly correlated with GDP growth. Their study reveals that improvements in governance and human development work in tandem to foster stronger economic outcomes. This highlights the need for effective governance structures to maximize the benefits of human capital investments in the GCC.

The collective findings from these studies emphasize that human development, governance, and innovation are pivotal to the long-term economic success of the GCC countries. While these nations have historically relied on oil rents, their future economic stability will depend on their ability to invest in human capital, foster innovation, and strengthen governance frameworks. As shown by [Grubaugh \(2015\)](#), a focus on improving HDI, in conjunction with strong governance, can provide the foundation for more sustainable, diversified growth in the GCC region.

### 2.3.4. Political Stability and Economic Growth

Political stability is a key enabler of economic growth, particularly in the GCC region. Stable political environments create conditions conducive to investment and long-term economic planning. [Abdalla and Abdelbaki \(2014\)](#) note that political stability in countries like Bahrain and the UAE fosters the growth of the FDI and exports. However, political instability, as highlighted by [Aisen and Veiga \(2013\)](#), can reduce productivity growth by deterring long-term investment. [Hvidt \(2013\)](#) and [Rajan and Zingales \(2003\)](#) emphasize that political and economic obstacles continue to hinder the successful implementation of diversification efforts in the GCC. Political will is crucial in overcoming barriers to financial

reforms and economic diversification in resource-dependent economies like those in the GCC. [Ross \(2018\)](#) also underscores the political dynamics related to resource dependence, particularly in oil-rich nations, further highlighting the importance of governance reforms alongside economic reforms.

### 2.3.5. Gross Capital Formation (GCF) and Economic Growth

Gross capital formation (GCF), representing investments in physical capital such as infrastructure, machinery, and equipment, is a critical driver of economic growth. GCF enhances a country's productive capacity, which, according to [Solow's \(1964\)](#) growth model, directly influences long-term economic performance. This is particularly relevant in economies transitioning from resource dependence, such as those in the GCC, where capital investments are essential for diversification and reducing reliance on oil revenues.

Empirical evidence supports the positive relationship between GCF and economic growth. [Barro \(1991\)](#) found a strong correlation between GCF and GDP growth, especially in countries seeking economic diversification. In the context of the GCC, investments in physical capital not only build infrastructure but also stimulate innovation and foster resilience, allowing these economies to adapt to global shifts in energy markets.

[Topcu et al. \(2020\)](#) further emphasize the importance of GCF in shaping economic growth across various income levels. Their study of 124 countries reveals that capital accumulation, combined with energy consumption and natural resources, significantly impacts national productivity. In high-income countries, GCF positively influences GDP, but in low-income countries, its effect is less pronounced, indicating that additional factors such as institutional strength, are necessary to maximize GCF's potential. In examining the role of investment, [Gylfason and Zoega \(2001\)](#) argue that abundant natural resources can crowd out physical capital, thus inhibiting economic growth.

In conclusion, GCF is a vital component of economic development, particularly for countries like those in the GCC, which are working to diversify their economies. The accumulation of physical capital drives growth, but its effectiveness depends on regional and institutional contexts, underscoring the need for tailored policies that align with specific economic conditions.

### 2.3.6. The Role of Foreign Direct Investment (FDI)

Foreign direct investment (FDI) is widely recognized as a key driver of economic growth, particularly in developing and resource-dependent economies. Research by [Borensztein et al. \(1998\)](#) underscores the positive impact of FDI on GDP growth, particularly through technology transfer, managerial expertise, and increased productivity. In the Gulf Cooperation Council (GCC) economies, FDI plays a critical role in diversification efforts by providing external capital for developing non-oil sectors such as finance, tourism, and infrastructure ([Alfaro et al. 2004](#)). However, the success of FDI in boosting growth is contingent upon the absorptive capacity of the host country—the ability to effectively utilize FDI through factors like human capital and institutional quality ([Carkovic and Levine 2005](#)). The effectiveness of FDI is often influenced by domestic conditions. For instance, [Blomström et al. \(2003\)](#) emphasize that robust institutions and a favorable business environment are necessary to maximize FDI's benefits. The presence of well-developed financial markets, efficient regulatory frameworks, and skilled labor are crucial in amplifying FDI's positive effects on economic growth.

In the GCC context, [Al-Iriani \(2007\)](#) explores the relationship between FDI and economic growth using heterogeneous panel analysis. His findings reveal a bi-directional causality between FDI and GDP, indicating that FDI promotes economic growth, and growing economies, in turn, attract more FDI. This is particularly relevant in the GCC, where countries have actively opened their economies to foreign investment as part of broader efforts to diversify away from oil dependence. Al-Iriani emphasizes the role of FDI in technological diffusion and stresses the need for continued improvements in infrastructure, human capital, and financial market development to attract and maximize FDI.



The studies collectively demonstrate that FDI can have a significant positive impact on economic growth, but the magnitude of this impact is largely dependent on domestic conditions. For countries like those in the GCC, where FDI inflows have grown substantially in recent years, there is a clear need for policies that enhance absorptive capacities, such as investing in education, infrastructure, and institutional reforms. While FDI plays a crucial role in promoting economic growth and diversification, the effectiveness of this relationship is shaped by both internal and external factors.

### 3. Methodology

This study uses a comprehensive econometric approach to examine the relationship between market capitalization, oil rents, and other macroeconomic variables on GDP growth in the GCC countries from 2000 to 2022. Both static and dynamic panel data models are applied to account for short-term fluctuations and long-term equilibrium dynamics in these resource-dependent economies.

#### 3.1. Data Sources

The data for this study are sourced from authoritative institutions, including the World Bank, the International Monetary Fund (IMF), and various national statistical agencies. These sources are widely recognized for their reliability and rigor in compiling macroeconomic indicators, which ensures the credibility of the variables used in our analysis. The key variables, such as GDP growth, oil rents, foreign direct investment (FDI), and inflation, are derived from these institutions, providing a consistent and accurate dataset that reflects both national and international economic trends.

The World Bank and IMF databases offer data spanning several decades, allowing for comprehensive longitudinal analysis that is essential for studying trends and fluctuations in the GCC economies. These organizations follow standardized procedures in data collection, including cross-referencing national statistics and applying international guidelines to harmonize data from various sources. This ensures that the data are comparable across countries and, over time, a critical factor when analyzing panel data from different GCC nations.

To further assess the quality of the data, we acknowledge the importance of timeliness and accuracy—particularly considering global events such as the 2008 financial crisis and the COVID-19 pandemic. Both the World Bank and IMF update their data regularly to capture real-time changes in economic performance, ensuring that any sudden shocks or shifts are reflected as soon as possible. During these crises, these institutions were able to swiftly release emergency reports and update forecasts to provide policymakers and researchers with up-to-date information.

Although some time lags in data reporting are inevitable, particularly for more detailed national data, both organizations prioritize updating key economic indicators such as GDP growth, inflation, and oil rents to reflect the most current state of the global economy. Their data collection methodologies follow strict verification protocols, ensuring high accuracy. These standards are vital, especially during periods of uncertainty, when accurate data are critical for making informed policy decisions.

Furthermore, the rigorous cross-validation process employed by the World Bank and IMF, which involves comparing national data sources and international guidelines, minimizes inconsistencies and enhances the overall reliability of the dataset. This meticulous approach ensures that the data are not only timely but also robust, providing a solid foundation for our econometric analysis.

#### 3.2. Empirical Strategy and Model Justification

The empirical strategy begins by applying fixed effects (FE) and random effects (RE) models to assess the cross-sectional and temporal dynamics of the GCC economies. The Hausman test ([Hausman 1978](#)) was employed to determine the preferred model, with the

fixed effects model being selected. This model accounts for unobserved, time-invariant heterogeneity across countries, capturing within-country variability in GDP growth.

Given the dynamic nature of the dataset, the study also applies the generalized method of moments (GMM) to address potential endogeneity, which may arise from lagged dependent variables or simultaneity bias between GDP growth and other macroeconomic variables. The Arellano–Bond GMM estimator ([Arellano and Bond 1991](#)) is particularly suitable for dynamic panel data and was used to correct for first-order autocorrelation and heteroskedasticity, thereby ensuring unbiased and consistent estimates.

### 3.3. Variables

The econometric models developed in this study incorporate a range of key macroeconomic variables to analyze their influence on GDP growth in the GCC countries. The dependent variable in the model is GDP Growth, which represents the annual percentage increase in the gross domestic product, serving as a fundamental indicator of economic performance and overall prosperity.

One of the central independent variables is Market Capitalization (Mcap), which serves as a proxy for the size of financial markets. Expressed as a percentage of GDP, market capitalization reflects the total value of publicly traded companies and is crucial in assessing the depth and development of financial markets in the region.

Oil Rents (OR) represent revenues derived from the extraction of natural resources, particularly oil, a dominant source of income in the GCC economies. Oil rents are critical in determining the extent to which these economies rely on natural resources and are thus integral to understanding the dynamics of resource dependency and the so-called “resource curse.”

The Human Development Index (HDI) is included as a composite indicator of human capital development. HDI captures a country’s health, education, and income levels, providing a holistic measure of social and economic progress. In the context of economic growth, human capital development is vital for fostering innovation, productivity, and sustainable growth.

The Trade Balance (TB), representing the difference between exports and imports, measures the contribution of the external sector to GDP growth. A positive trade balance indicates that a country exports more than it imports, contributing positively to GDP, while a negative trade balance could imply reliance on foreign goods and services.

Gross Capital Formation (GCF), often referred to as domestic investment in physical assets such as machinery, buildings, and infrastructure, is a crucial determinant of long-term economic growth. GCF reflects the level of investment activity within a country, which enhances productivity and fosters sustainable economic development.

Foreign Direct Investment (FDI) represents capital inflows from foreign investors, which contribute to domestic investment, technology transfer, and integration into the global economy. FDI is a critical driver of economic diversification, especially in resource-dependent economies like those in the GCC.

Consumer Price Index (CPI) is used as a measure of inflation, indicating changes in the price level of a basket of goods and services. Inflation affects purchasing power, cost of living, and overall economic stability, making CPI a vital variable in assessing the macroeconomic environment.

The Unemployment Rate (UN) reflects the labor market’s performance and is a key indicator of economic health. High unemployment can signal inefficiencies in the labor market and may result in lower productivity, while low unemployment generally indicates a well-functioning economy with higher levels of productivity.

Lastly, Political Stability (PS) is included as a governance indicator, assessing the impact of the political environment on economic performance. Stable political conditions are essential for fostering investor confidence, ensuring efficient policy implementation, and supporting sustainable economic growth.

Each of these variables plays a significant role in understanding the broader macroeconomic environment in the GCC, and their interactions provide insights into the factors driving or hindering economic growth in resource-dependent economies.

### 3.4. Stationarity and Cointegration Analysis

The stationarity of the variables was assessed using the Levin, Lin, and Chu (LLC) unit root tests, as macroeconomic data are often non-stationary. Variables found to be non-stationary at levels were first differenced to achieve stationarity. Additionally, to examine the existence of long-run equilibrium relationships between the variables, the Kao Panel Cointegration Test was performed. The test results confirmed the presence of cointegration, suggesting that despite short-term fluctuations, the variables move together in the long run, justifying the application of dynamic models such as GMM.

### 3.5. Model Specification

The empirical model used in the study is specified as follows:

$$\text{GDP\_Growth}_{it} = \alpha + \beta_1 \text{MCapit} + \beta_2 \text{Orit} + \beta_3 \text{HDI}_{it} + \beta_4 \text{Tbit} + \beta_5 \text{GCFit} + \beta_6 \text{FDI}_{it} + \beta_7 \text{CPI}_{it} + \beta_8 \text{Unit} + \beta_9 \text{PSit} + \varepsilon_{it}$$

where:

$i$  refers to the country and  $t$  refers to time (year).

$\alpha$  is the constant term.

$\varepsilon_{it}$  represents the error term, which includes country-specific and time-specific factors not captured by the independent variables.

### 3.6. Robustness Checks and Diagnostic Tests

To ensure the robustness of our results, we apply the dynamic generalized method of moments (GMM) model as part of our econometric approach. The dynamic GMM model is particularly suited for addressing endogeneity issues that arise in the context of economic growth studies in oil-dependent economies like those of the GCC countries. Endogeneity is a concern when explanatory variables, such as oil rents and foreign direct investment (FDI), may be correlated with the error term due to feedback effects or omitted variables.

The dynamic GMM model was selected due to its ability to address key econometric challenges in the analysis. First, it effectively handles endogeneity by using lagged values of the explanatory variables as instruments, which removes the correlation between the independent variables and the error term, ensuring consistent estimates. Second, the model is well-suited for capturing lag effects, which are crucial in the context of dynamic economic growth. In oil-dependent economies, past performance, such as previous levels of growth or external shocks (e.g., fluctuations in oil prices), can have delayed impacts on current outcomes. By including lagged dependent variables, the dynamic GMM model accounts for the persistence of growth over time. Lastly, the dynamic GMM model controls for unobserved heterogeneity, much like the fixed effects model. This allows the model to account for country-specific characteristics that remain constant over time, providing more reliable results by focusing on the variation within each country.

To ensure the reliability of the model estimates, several diagnostic tests were conducted which confirm that the model is appropriately specified and that the findings are reliable for policy recommendations.

To validate the dynamic GMM model, we conduct the following diagnostic tests:

- The Arellano–Bond test for autocorrelation ensures that there is no second-order serial correlation in the residuals, confirming the consistency of the model.
- The Sargan/Hansen test for instrument validity checks whether the instruments used in the GMM model are valid and not over-identified.

These diagnostic tests provide further assurance that the dynamic GMM model offers reliable and unbiased estimates, making it a robust method for exploring the relation-

ships between GDP growth, oil rents, FDI, and other macroeconomic variables in the GCC countries.

Additionally, to ensure the overall robustness of the regression analysis, we conducted the Variance Inflation Factor (VIF) test to check for multicollinearity.

#### 4. Results and Discussion

This study presents the results of the econometric analysis, which examines the influence of key economic indicators on GDP growth in the GCC countries. Recognizing the intricate relationships between financial markets, natural resource reliance, socio-economic factors, and both external and domestic investments, a comprehensive econometric approach was employed.

##### 4.1. Fixed and Random Effects Model Results

In this study, we employ both the fixed effects (FE) and random effects (RE) models to analyze the relationship between key economic variables, such as GDP growth, and other macroeconomic indicators across the GCC countries. These models are standard approaches in panel data analysis, where cross-sectional and time-series data are combined. The fixed effects model is chosen based on the results of the Hausman test, which compares the FE and RE models to determine which better fits the data.

The Hausman test evaluates whether the unobserved heterogeneity (i.e., country-specific characteristics that are constant over time) is correlated with the independent variables. If there is a correlation, the fixed effects model is preferred because it controls for time-invariant characteristics of each country, allowing us to focus on the within-country variability of GDP growth and other variables over time.

The fixed effects model captures the country-specific differences that remain constant over time (e.g., institutional structures, geographic factors, or cultural elements), isolating the within-country variation in GDP growth. This allows the model to assess how changes in key independent variables (such as oil rents, FDI, and inflation) affect GDP growth within each country, net of these unchanging factors. In contrast, the random effects model assumes that these country-specific characteristics are uncorrelated with the independent variables, which can lead to biased estimates if this assumption does not hold.

The results of the Hausman test in this study indicate that the fixed effects model is more appropriate. Specifically, the test showed a significant difference between the two models, suggesting that the unobserved heterogeneity is indeed correlated with the independent variables. This result favors the fixed effects model, as it accounts for this correlation, providing more reliable estimates of the impact of key macroeconomic indicators on GDP growth within each GCC country. A summary of the econometric models and their key features is provided in Table 1.

**Table 1.** Summary of Econometric Models and Their Key Features.

Model	Purpose	Tests/Criteria Used	Key Features
Fixed Effects Model	Examines the cross-sectional and temporal dynamics while controlling for time-invariant characteristics.	Hausman test to determine suitability over random effects model.	Captures unobserved country-specific characteristics; provides within-country variability analysis.
Random Effects Model	Explores cross-sectional dynamics, assuming time-invariant characteristics are random and uncorrelated with explanatory variables.	Compared to fixed effects via Hausman test	More efficient if unobserved characteristics are uncorrelated with independent variables.
Dynamic Panel Data (GMM)	Addresses endogeneity, lagged dependent variables, and the dynamic nature of economic growth.	Arellano–Bond GMM; tests for autocorrelation and heteroskedasticity.	Controls for autocorrelation and endogeneity; mitigates bias from unobserved heterogeneity.

By controlling for time-invariant factors and focusing on the variation within countries over time, the fixed effects model allows us to provide a more nuanced understanding of the dynamics affecting GDP growth in the GCC region. This model is especially important in resource-dependent economies, where long-term structural factors (such as reliance on oil revenues) are likely to influence economic performance differently within each country.

To address potential issues of endogeneity and the dynamic nature of the data, a dynamic panel data model using the GMM was applied. The Arellano–Bond GMM model controls for autocorrelation and heteroskedasticity, while addressing the endogeneity arising from lagged dependent variables. This method also mitigates bias from unobserved heterogeneity and effectively models the dynamic nature of economic growth, particularly relevant in oil-dependent economies like the GCC.

#### 4.2. Descriptive Statistics

The descriptive statistics (Table 2) highlight the significant volatility of key economic variables, such as GDP growth and oil rents, across the Gulf Cooperation Council (GCC) countries. The standard deviation of GDP growth rate (5.136) illustrates substantial variation in economic performance within the region. This reflects differences in the economic structure, the degree of oil dependency, and the effectiveness of economic policies implemented across these countries. Such variability underscores the vulnerability of these economies to external shocks, such as fluctuations in global oil prices and geopolitical events.

**Table 2.** The descriptive statistics.

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
GDP Growth	138	4.247	5.136	−8.855	26.17
Mcap	138	74.672	51.59	5.489	330.818
OR	138	28.422	12.94	6.696	58.369
HDI	138	0.818	0.064	0.28	0.94
TB	138	21.059	11.783	−4.376	48.452
GCF	138	26.538	7.341	10.665	48.869
FDI	138	2.252	2.737	−2.76	15.751
CPI	138	2.561	3.213	−4.863	15.05
UN	138	2.576	1.818	0.1	7.45
PS	138	57.605	22.096	9.005	92.462
Event Dummy 1	138	0.174	0.38	0	1

Additionally, the standard deviation of oil rents (12.94) further highlights the heavy reliance on oil revenues and the inherent volatility associated with oil-dependent economies. This variability supports the argument for economic diversification to reduce susceptibility to resource-related price fluctuations and ensure more stable, long-term growth.

In interpreting these values, the high standard deviations in both GDP growth and oil rents set the stage for the subsequent regression analysis, where we explore how these factors contribute to short-term growth and their diminishing returns in the long run.

#### 4.3. Panel Unit Root Tests

The LLC panel unit root tests (Table 3) reveal that several variables (GDP, HDI, OR, GCF, CPI, UN) are non-stationary at levels but become stationary after first differencing. This result justifies the use of a dynamic panel model such as GMM, which handle non-stationary variables more effectively, as non-stationary variables could otherwise bias the results. The stationarity of the variables post-differencing allows for meaningful long-term analysis, validating the econometric approach.



**Table 3.** LLC panel unit root test results.

Variable	At Level	At First Difference
	Statistic	p-Value
GDP Growth	−2.4887	0.0064
Mcap	−0.0869	0.4654
HDI	−1.3526	0.0881
OR	−1.5277	0.0633
TB	−1.9503	0.0256
GCF	−1.5294	0.0631
FDI	−1.8847	0.0297
UN	−1.6575	0.0487
CPI	−0.8619	0.1944
PS	−2.4003	0.0082

#### 4.4. Correlation Matrix

The correlation matrix (Table 4) reveals significant correlations between variables such as GDP growth, trade balance (TB), and foreign direct investment (FDI). These moderate correlations suggest potential interactions between economic growth and other macroeconomic factors. Notably, there is a positive correlation between GDP growth and the trade balance, indicating that a favorable trade balance is associated with stronger economic performance in the GCC countries. This relationship underscores the economic importance of the trade balance for GDP growth, particularly in oil-dependent economies.

**Table 4.** Correlation matrix.

Variables	GDP	Mcap	OR	HDI	TB	GCF	FDI	CPI	Un	PS	Dummy
GDP	1.000										
Mcap	0.083	1.000									
OR	0.178	−0.011	1.000								
HDI	−0.051	0.229	−0.319	1.000							
TB	0.355	0.034	0.455	−0.009	1.000						
GCF	0.106	0.107	−0.430	0.225	−0.290	1.000					
FDI	0.265	−0.005	−0.258	0.047	0.002	0.143	1.000				
CPI	0.377	0.042	0.265	0.011	0.192	0.123	0.182	1.000			
Un	−0.199	0.138	0.323	−0.148	−0.258	−0.227	−0.172	−0.019	1.000		
PS	0.227	−0.263	0.045	−0.183	0.331	0.077	−0.027	0.128	−0.316	1.000	
Dummy	−0.107	0.213	−0.055	0.123	−0.077	0.194	0.162	0.318	0.059	−0.033	1.000

In the context of the GCC countries, which rely heavily on oil exports, maintaining a trade surplus can serve as an essential buffer against the volatility of global oil prices. During periods of high oil prices, trade surpluses tend to increase, thereby contributing positively to GDP growth. Conversely, when oil prices decline, a robust trade surplus—driven by non-oil exports or controlled imports—can help stabilize the economy and mitigate the negative effects of reduced oil revenues. This buffering effect allows oil-dependent economies to maintain economic stability and sustain growth even during global oil market shocks or downturns.

Moreover, foreign trade surpluses enable GCC countries to accumulate foreign reserves, which further strengthen economic stability. These reserves provide governments with the resources to implement counter-cyclical policies, such as fiscal stimulus or investments in economic diversification, reinforcing long-term resilience. As such, the positive correlation between GDP growth and trade balance highlights the critical role of a healthy trade balance in supporting sustainable economic growth and protecting these economies from external shocks.

#### 4.5. Regression Models

Table 5 presents the results from the expanded regression models, capturing the effects of key economic indicators on GDP growth in the GCC countries. In Model 1, which includes Market cap and Oil Rent, only Oil Rent shows a statistically significant positive impact on GDP growth, with a coefficient of 0.0690 \* ( $p < 0.1$ ). While Market cap has a positive coefficient (0.00884), it is not statistically significant, indicating that, in the short run, the size of financial markets may have a limited direct impact on GDP growth.

**Table 5.** Expanded regression models.

Variable	Model 1 (Basic)	Model 2 (Extended)	Model 3 (Complete)
Mcap	0.00884 (0.00868)	0.00633 (0.00805)	0.0109 (0.00794)
OR	0.0690 * (0.0355)	0.0347 (0.0391)	0.0607 (0.0446)
HDI	−1.317 (7.423)	−7.717 (6.972)	−5.752 (6.731)
TB		0.170 *** (0.0392)	0.0972 ** (0.0454)
GCF		0.190 *** (0.0618)	0.105 * (0.0620)
FDI			0.435 *** (0.150)
CPI			0.344 ** (0.132)
UN			−0.306 (0.261)
PS			0.0220 (0.0203)
Constant	2.703 (6.363)	0.462 (6.081)	−0.757 (6.296)
Observations	138	138	138
R-squared	0.039	0.193	0.321

Note: Standard errors in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

As more variables are introduced in Model 2, Trade Balance (TB) and Gross Capital Formation (GCF) emerge as key drivers of GDP growth. The coefficient for TB is 0.170 \*\*\* ( $p < 0.01$ ), and for GCF, it is 0.190 \*\*\* ( $p < 0.01$ ), indicating their strong positive effects on economic performance.

In the full model (Model 3), Foreign Direct Investment (FDI) and Inflation (CPI) are also significant, with positive coefficients of 0.435 \*\*\* ( $p < 0.01$ ) and 0.344 \*\* ( $p < 0.05$ ), respectively. These results underscore the importance of external investments and inflationary dynamics in shaping economic performance in the GCC. Additionally, TB and GCF remain significant, reinforcing the importance of external trade and capital investment. However, Human Development Investment (HDI) remains statistically insignificant across all models, implying that improvements in human capital may not immediately translate into short-term economic growth, though they could play a crucial role in the long run. This result is consistent with studies such as Barro (1991), which suggest that the effects of human capital development on economic growth often materialize in the long term, once structural reforms and diversification efforts begin to take hold.

Interestingly, Political Stability (PS) and Unemployment (UN), while included in Model 3, do not exhibit statistically significant effects on GDP growth. PS has a positive coefficient (0.0220), and UN has a negative one (−0.306), but neither are significant, indicating that these factors may not play a direct role in influencing GDP growth in the short term. However, further analysis could explore their potential long-term impacts.

The diminishing impact of Oil Rent (OR) across models suggests a growing need to reduce dependency on natural resources, supporting the view that reliance on natural resources alone is not a sustainable growth strategy. While OR is statistically significant in Model 1, its significance diminishes as more variables are introduced in Models 2 and 3, aligning with the broader literature on the resource curse (e.g., [Sachs and Warner 2001](#)).

The expanded regression models reveal that while natural resources remain crucial for short-term growth, the inclusion of additional variables highlights other significant drivers. TB and GCF emerge as key factors supporting economic performance, emphasizing the importance of external trade and domestic capital investment. The positive impact of FDI reinforces the role of external capital inflows, and the significant relationship between CPI and GDP growth demonstrates the critical need for effective inflation management.

Overall, these results suggest that the GCC economies cannot rely solely on natural resources for long-term sustainable growth. A more comprehensive approach, leveraging trade, investment, and inflation control, is necessary to achieve long-term economic stability and resilience. Although Market Capitalization remains positively correlated but insignificant, this might indicate that the size of financial markets has a more indirect or long-term influence on economic growth.

#### 4.6. Cointegration and Long-Run Relationships

Table 6 presents the results of the Kao Panel Cointegration Test, confirming the existence of long-run equilibrium relationships between key economic variables in the GCC countries. These variables include GDP growth, Mcap, OR HDI, TB, GCF, FDI, CPI, UN, and PS. With  $p$ -values below 0.05 across several versions of the Dickey–Fuller tests, the results suggest that despite short-term fluctuations, these variables move together over time, indicating stable and persistent economic relationships.

**Table 6.** Panel cointegration analysis: Kao Test results.

Cointegration Test	Test Statistic	$p$ -Value
Modified Dickey–Fuller Test	−1.9253	0.0271
Dickey–Fuller Test	−2.6352	0.0042
Augmented Dickey–Fuller Test	−2.4585	0.0070
Unadjusted Modified Dickey–Fuller	−2.1247	0.0168
Unadjusted Dickey–Fuller Test	−2.7095	0.0034

Note:  $p$ -values below 0.05 indicate rejection of the null hypothesis, suggesting the presence of long-term equilibrium relationships among the variables.

This cointegration highlights the importance of considering the long-term interplay between these variables. Even though short-term shifts might occur, the long-run equilibrium suggests that these economic indicators are tied together by underlying forces that support stable growth in the region.

The Kao Panel Cointegration Test results complement the short-term findings from Table 5. In Table 5, variables such as TB, GCF, FDI, and CPI played significant roles in short-term GDP growth. The cointegration test confirms that these variables continue to have long-term relevance. The importance of TB and GCF for both short-term and long-term growth emphasizes the role of external trade and domestic investment in sustaining economic performance in the GCC.

FDI and CPI also remain vital in the long run, reinforcing their roles in supporting sustained economic growth. FDI highlights the importance of external capital inflows, while CPI reflects the need for careful inflation management. The persistence of these relationships over time suggests that focusing on improving trade, investment, and inflation control will be essential for the GCC's long-term economic stability.

### Role of Oil Rent and the Resource Curse

Oil Rent, while significant in the short term, shows a diminishing impact as more variables are introduced in the long-run analysis. This signals the need for the GCC economies to gradually reduce their reliance on oil as a driver of growth. The long-run equilibrium shows that other factors, such as FDI, CPI, and GCF, play increasingly important roles, underscoring the necessity of diversifying the economy beyond natural resources.

Variables like UN and PS, which were insignificant in the short-term analysis in Table 5, also appear in the long-term cointegration relationships. This suggests that, while they may not have immediate effects on GDP growth, these factors contribute to the long-term health and stability of the economy. Persistent unemployment, for example, could undermine growth in the long run, and political stability is essential for sustaining investor confidence and economic consistency over time.

The long-run equilibrium relationships among these variables reinforce the broader need for diversified economic policies. Focusing on short-term gains through oil revenue alone will not ensure sustainable growth. Instead, investing in financial markets, human capital, trade, and inflation control can help build a more resilient economic structure.

Although HDI was statistically insignificant in the short-term models, its inclusion in the long-term analysis suggests that human capital investments, such as improvements in education and healthcare, are crucial for long-term growth. This supports the argument that focusing on human development, even if it does not yield immediate results, will be critical for sustainable growth in the future.

Future research may further investigate the delayed effects of human capital investments, particularly through longitudinal studies that track the outcomes of reforms like Vision 2030. This would provide a more comprehensive understanding of the timeline for human capital development to influence GDP growth in oil-dependent economies.

In conclusion, the Kao Panel Cointegration Test results confirm that key variables are tied by long-run equilibrium relationships in the GCC economies. While OR continues to provide short-term growth, the long-term sustainability of the region depends on diversifying beyond oil and investing in financial development, trade, inflation control, and human capital. Policymakers should prioritize these areas to ensure long-term resilience and growth, positioning the GCC economies to better manage external shocks and achieve sustained prosperity.

### 4.7. Event Study and Dummy Variables

Table 7 presents the results of an event study regression, which includes dummy variables to capture the impact of significant global economic disruptions, such as the 2008 Financial Crisis and the 2020 COVID-19 pandemic, on GDP growth in the GCC countries. The findings demonstrate that these crises had statistically significant negative effects on GDP growth, with the event dummy in Model 3 showing a highly significant coefficient of  $-3.683^*$  ( $p < 0.01$ ). This highlights the profound economic challenges that arise when oil-dependent economies are exposed to external global shocks. The results align with broader findings in the literature regarding the vulnerability of resource-dependent economies to external shocks. This supports the findings in Table 7, where the 2008 Financial Crisis and the 2020 COVID-19 pandemic had substantial negative effects on GDP growth in the GCC, demonstrating the region's heightened exposure to external disruptions.

The results in Table 7 also reflect the vulnerabilities of oil-dependent economies like the GCC to such shocks, as evidenced by the diminishing significance of OR across the models. Model 1 shows a positive but weakly significant relationship between OR and GDP growth ( $0.0675^*$ ,  $p < 0.1$ ), but this effect becomes insignificant in Models 2 and 3 as other economic factors, such as FDI and CPI, are introduced. This decline in significance aligns with the concept of the resource curse, where economies heavily reliant on natural resources often struggle to sustain long-term economic growth due to their vulnerability to external shocks and price fluctuations.

**Table 7.** Event study regression results.

Variable	Model 1 (Basic)	Model 2 (Extended)	Model 3 (Complete)
Mcap	0.0112 (0.00881)	0.0105 (0.00841)	0.0157 ** (0.00773)
OR	0.0675 * (0.0354)	−0.000889 (0.0384)	0.0558 (0.0428)
HDI	−0.651 (7.413)	−4.958 (7.168)	−4.392 (6.462)
TB		0.150 *** (0.0401)	0.0867 ** (0.0436)
GCF		0.120 ** (0.0596)	0.0889 (0.0678)
FDI			0.485 *** (0.144)
CPI			0.478 *** (0.132)
UN			−0.236 (0.251)
PS			0.0246 (0.0195)
Event Dummy	−1.630 (1.170)	−1.292 (1.120)	−3.683 *** (1.046)
Constant	2.307 (6.347)	4.606 (6.089)	−2.427 (6.052)
Observations	138	138	138
R-squared	0.053	0.144	0.381

Note: Standard errors in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

The resource curse is particularly relevant to the GCC economies, where oil has traditionally been the primary driver of economic growth. As shown in Table 7, the impact of OR diminishes as more variables are included in the analysis, signaling that oil revenues alone are not sufficient to protect these economies from external shocks like the 2008 Financial Crisis and the 2020 COVID-19 pandemic. The GCC economies, despite their abundant oil resources, face greater exposure to global disruptions because of their heavy reliance on oil, which subjects them to fluctuations in global oil prices and demand. The negative effects observed in Table 7 support the resource curse hypothesis, reinforcing the need for diversification strategies to mitigate the risks associated with dependence on natural resources. This is reflected in Table 7, where the negative effects of global disruptions highlight the need for economic diversification to mitigate the risks associated with dependence on oil.

As reliance on oil revenues diminishes, other variables take on more importance in explaining GDP growth. FDI becomes highly significant in Model 3 (0.485 \*,  $p < 0.01$ ), highlighting the critical role of external capital inflows in supporting growth, particularly during periods of global disruption. CPI also plays a significant role (0.478 \*,  $p < 0.01$ ), reflecting the importance of inflation management in maintaining economic stability amid external shocks.

Additionally, TB remains an important factor, with a significant positive effect on GDP growth (0.0867,  $p < 0.05$ ), demonstrating that trade performance is key to sustaining economic growth, even during periods of global turmoil. Mcap becomes statistically significant in Model 3 (0.0157,  $p < 0.05$ ), indicating the growing relevance of financial market development as part of a diversified economic framework.

The concept of the resource curse is further reinforced by the results in Table 7, which show that the significance of OR diminishes as other non-oil variables become more important in driving GDP growth. This shift reflects the vulnerability of oil-dependent economies, which struggle to maintain stability when external shocks affect global oil demand and prices. The negative impact of global disruptions on GDP growth underscores



the need for economic diversification in the GCC to reduce reliance on oil revenues and build a more resilient economic foundation.

By attracting foreign investment, improving trade performance, and maintaining inflation control, the GCC can develop a more robust and resilient economic structure, less susceptible to external shocks and fluctuations in oil prices. The significant positive coefficients for FDI, CPI, and TB in Model 3 highlight the importance of economic diversification and the development of other sectors to sustain growth and reduce exposure to the resource curse. These findings align with those of [Al-Mulali and Sab \(2013\)](#), who emphasize the importance of foreign capital inflows and inflation management in stabilizing resource-dependent economies.

#### 4.8. Advanced Econometric Analysis: Fixed and Random Effects Models

Table 8 compares the results from the fixed effects (FE) and random effects (RE) models, used to analyze the relationship between key economic variables and GDP growth in the GCC countries. The Hausman test, as referenced in Table 9, indicates a preference for the fixed effects model, suggesting that unobserved country-specific factors, such as governance, institutional structures, or unique economic policies, could bias the estimates in the random effects model. This makes the fixed effects model more appropriate, as it controls for these factors, providing more reliable and consistent estimates.

**Table 8.** Fixed and random effects regression results.

Variable	Fixed Effects (FE)	Random Effects (RE)
Mcap	0.0165 * (0.00926)	0.0109 (0.00794)
OR	0.195 *** (0.0743)	0.0607 (0.0446)
HDI	1.526 (6.939)	−5.752 (6.731)
TB	0.0182 (0.0530)	0.0972 ** (0.0454)
GCF	0.0470 (0.0946)	0.105 * (0.0620)
FDI	0.360 ** (0.169)	0.435 *** (0.150)
CPI	0.321 ** (0.136)	0.344 *** (0.132)
UN	−1.756 *** (0.661)	−0.306 (0.261)
PS	0.0798 * (0.0433)	0.0220 (0.0203)
Constant	−7.125 (7.952)	−0.757 (6.296)
Observations	138	138
R-squared	0.339	
Number of Countries	6	6

Note: Standard errors in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table 9.** Hausman (1978) specification test.

Statistic	Value
Chi-Square Test Value	19.47
p-value	0.0215

The results from the fixed effects model highlight the significance of OR in driving GDP growth in the GCC. With a positive and statistically significant coefficient (0.195 \*,  $p < 0.01$ ), oil revenues remain central to economic performance, despite ongoing efforts

toward diversification. In contrast, OR in the random effects model shows a weaker relationship (0.0607) and loses statistical significance. This suggests that oil's contribution to growth is more context-dependent, influenced by specific country characteristics.

Another key variable, FDI, emerges as a crucial driver of growth, particularly in the fixed effects model (0.360,  $p < 0.05$ ). This finding underscores the importance of attracting foreign investment, which can fuel long-term growth and contribute to the diversification of the economy. Similarly, GCF, though not statistically significant in the fixed effects model (0.0470), suggests that domestic investment remains important for economic expansion.

Inflation dynamics, as measured by the CPI, show a positive and significant impact on GDP growth in both models, with the fixed effects model coefficient at 0.321 ( $p < 0.05$ ). This indicates that inflationary pressures, possibly reflecting increased demand during economic growth phases, are positively correlated with GDP growth in the region. Managing inflation effectively remains a key consideration for policymakers, especially in economies that are transitioning from oil dependency to more diversified sources of income.

UN has a significantly negative impact on GDP growth in the fixed effects model ( $-1.756^*$ ,  $p < 0.01$ ), indicating that high unemployment rates present a major obstacle to economic development. This suggests that addressing labor market inefficiencies and creating job opportunities should be central to policy efforts aimed at fostering long-term growth. The lack of significance for UN in the random effects model further supports the use of fixed effects for more accurate insights into the role of unemployment.

PS has a moderate positive effect on GDP growth in the fixed effects model (0.0798,  $p < 0.1$ ), reinforcing the notion that stable political environments contribute to better economic outcomes. While the relationship is weaker compared to other variables, it remains an important factor, particularly when considering the long-term attractiveness of the GCC for foreign investors.

These findings align with the concept of the resource curse, which posits that economies heavily reliant on natural resources like oil often face growth challenges due to volatility in global prices and demand. The diminishing role of OR as more variables are introduced in the analysis, combined with the increasing significance of FDI, CPI, and TB, supports the argument for economic diversification. GCC economies must continue to reduce their dependence on oil revenues and focus on developing other sectors to ensure long-term economic resilience.

By emphasizing foreign investment, trade, inflation control, and labor market reforms, GCC policymakers can mitigate the risks associated with the resource curse. The insights gained from the fixed effects model demonstrate the importance of addressing structural issues, such as unemployment and political stability, to create a more sustainable and diversified economic foundation. These strategies are essential to achieving sustained growth and reducing the vulnerability of the GCC economies to external shocks and fluctuations in oil prices.

#### 4.9. Diagnostic Tests and Robustness of Econometric Results

To ensure the robustness and reliability of the econometric results, several diagnostic tests were conducted to detect potential issues in the model specifications. The results of these tests, as outlined in Tables 10–13, confirm that the necessary corrections were applied, addressing concerns related to heteroskedasticity, multicollinearity, and autocorrelation, ensuring the validity of the findings.

**Table 10.** Breusch-Pagan/Cook-Weisberg test for heteroskedasticity.

Test	Statistic	<i>p</i> -Value
Breusch-Pagan/Cook-Weisberg Test	11.45	0.0007

**Table 11.** Variance inflation factor (VIF) analysis.

Variable	VIF
Mcap	2.31
OR	1.89
HDI	3.14
TB	1.73
GCF	1.62
FDI	2.02
CPI	1.95
UN	2.45
PS	1.87

**Table 12.** Wooldridge test for autocorrelation.

Statistic	Value
F-Statistic	4.19
<i>p</i> -value	0.0458

**Table 13.** Modified Wald test for groupwise heteroskedasticity.

Statistic	Value
Chi-Square Test Value	25.36
<i>p</i> -value	0.0000

The first test conducted was the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity (Table 10). The test revealed the presence of heteroskedasticity, as indicated by a statistically significant *p*-value of 0.0007. This result suggests that the variance of the residuals was not constant across observations, which could lead to unreliable coefficient estimates if left unaddressed. To mitigate this issue, robust standard errors were applied to the model. This adjustment corrected for heteroskedasticity, ensuring that the standard errors are reliable, and allowing for more accurate inferences regarding the significance of the model's coefficients.

To assess the presence of multicollinearity among the explanatory variables, a Variance Inflation Factor (VIF) analysis was performed (Table 11). The results show that all VIF values were well below the conventional threshold of 5, with the highest being 3.14 for HDI, indicating that multicollinearity was not a significant concern. This confirms that the estimated coefficients are not inflated or distorted by high correlations between the independent variables, ensuring the reliability of the regression results.

Next, the Wooldridge test for autocorrelation was applied to check for first-order autocorrelation in the panel data (Table 12). The test produced a statistically significant result, with an F-statistic of 4.19 and a *p*-value of 0.0458, indicating the presence of autocorrelation. Autocorrelation can lead to biased standard errors, which could result in incorrect inferences. To address this, the Arellano–Bond generalized method of moments (GMM) approach was implemented. This method corrects for both autocorrelation and endogeneity, ensuring that the coefficient estimates remain consistent and that the standard errors are robust.

Finally, the Modified Wald test for groupwise heteroskedasticity (Table 13) was conducted, yielding a chi-square value of 25.36 and a *p*-value of 0.0000, confirming the presence of significant groupwise heteroskedasticity. This form of heteroskedasticity suggests that the variance of the residuals varies across different groups (e.g., countries in the panel data). Similar to the Breusch-Pagan test results, robust standard errors were applied to correct for this heteroskedasticity, ensuring that the model provides reliable and unbiased coefficient estimates.

The combined results from these diagnostic tests reinforce the validity of the model specifications. By applying robust standard errors to address heteroskedasticity and using

the Arellano–Bond GMM approach to correct for autocorrelation and endogeneity, the econometric analysis ensures that the findings are statistically sound. The absence of multicollinearity further strengthens the confidence in the coefficient estimates, confirming that the relationships between the key economic variables and GDP growth are reliable.

These robustness checks demonstrate that the potential biases related to heteroskedasticity, multicollinearity, and autocorrelation have been properly addressed. As a result, the conclusions drawn from the econometric models are valid and provide a reliable basis for policy interpretation. The adjustments made to correct these issues ensure that the findings are robust, making the analysis suitable for guiding economic policy decisions in the GCC countries.

#### 4.10. Dynamic GMM Results

Table 14 presents the results of the dynamic GMM model, which examines the long-term dynamics of GDP growth in the GCC countries. The dynamic GMM approach is particularly well-suited for addressing issues of endogeneity and autocorrelation in panel data, allowing for more robust insights into the key factors influencing economic growth.

**Table 14.** Dynamic generalized method of moments (GMM) regression results.

Variable	GMM Estimates
Lagged GDP Growth	0.321 *** (0.0945)
Mcap	0.0126 * (0.00758)
OR	0.145 ** (0.0612)
HDI	−2.578 (5.963)
TB	0.0589 ** (0.0285)
GCF	0.0893 * (0.0532)
FDI	0.297 ** (0.143)
CPI	0.262 ** (0.127)
UN	−1.254 *** (0.432)
PS	0.0347 ** (0.0170)
Constant	0.576 (5.738)
Observations	138
Number of Instruments	15
Arellano–Bond Test (AR1 <i>p</i> -value)	0.0352
Arellano–Bond Test (AR2 <i>p</i> -value)	0.1897
Hansen Test ( <i>p</i> -value)	0.2764

Note: Standard errors in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

The significant positive coefficient for Lagged GDP Growth (0.321 \*,  $p < 0.01$ ) indicates a strong momentum effect within the GCC economies. This suggests that past economic performance plays an essential role in shaping current growth, reinforcing the idea that the economic trajectory of these countries is heavily influenced by sustained growth trends. This persistence effect is characteristic of dynamic models and emphasizes the importance of maintaining economic momentum.

The positive and significant effect of OR (0.145,  $p < 0.05$ ) highlights the continued importance of oil revenues in driving short-term growth. However, the potential diminishing

returns associated with oil rents point to the risks of resource dependency. As the region remains highly reliant on natural resources, particularly oil, the results suggest that this dependence may not be sustainable in the long run. This aligns with the resource curse hypothesis, where economies dependent on natural resource extraction often experience slower long-term growth due to external price fluctuations and declining returns over time. These findings reinforce the need for economic diversification in the GCC to reduce vulnerability to global oil price shocks and ensure more sustainable growth.

FDI emerges as a key driver of economic growth in the region, with a positive and significant coefficient (0.297,  $p < 0.05$ ). This underscores the importance of attracting external investment to support infrastructure development, technology transfer, and job creation. The role of FDI in driving growth highlights the potential for external capital to compensate for the limitations of oil rents and foster more diversified economic development.

Similarly, both TB (0.0589,  $p < 0.05$ ) and GCF (0.0893,  $p < 0.1$ ) contribute positively to GDP growth. A favorable trade balance and strong domestic capital formation are vital for building a resilient economic foundation. These findings point to the importance of trade policies and domestic investment strategies that can support long-term growth by reducing dependency on volatile oil markets.

While CPI shows a positive relationship with GDP growth (0.262,  $p < 0.05$ ), this could indicate that moderate inflation is associated with periods of economic expansion. Inflation may be a byproduct of increased demand during growth periods, though it must be managed carefully to prevent it from becoming a destabilizing force. This highlights the need for careful inflation management policies to support sustainable growth.

The negative and significant impact of the UN ( $-1.254^*$ ,  $p < 0.01$ ) further underscores the importance of addressing labor market inefficiencies. High unemployment rates hinder economic development by reducing productivity and consumption, making labor market reforms essential for achieving sustained growth. Efforts to lower unemployment are critical for ensuring that the benefits of economic expansion are more broadly shared and that productivity remains robust over the long term.

PS also plays a significant role in supporting growth, with a positive coefficient of 0.0347 ( $p < 0.05$ ). Political stability fosters a conducive environment for investment and economic development, highlighting the importance of governance and institutional strength in driving long-term economic performance. Stable political environments encourage investor confidence, which is crucial for sustaining growth in the face of global uncertainties.

The robustness of the dynamic GMM model is supported by the diagnostic results presented in Table 15. The Arellano–Bond test for first-order autocorrelation (AR1) returns a statistically significant result ( $p = 0.0352$ ), while the second-order autocorrelation test (AR2) is not significant ( $p = 0.1897$ ). The absence of second-order autocorrelation confirms that the model is not biased by serial correlation, ensuring the reliability of the estimates. Additionally, the Sargan test for instrument validity reports a  $p$ -value of 0.2764, indicating that the instruments used in the GMM estimation are valid and not over-identified. These diagnostic results validate the model's specification and confirm the robustness of the findings.

**Table 15.** Autocorrelation and overidentification test results.

Test	Test Statistic	$p$ -Value
First-Difference Arellano–Bond Test (AR1)	−2.11	0.0352
Second-Difference Arellano–Bond Test (AR2)	−1.31	0.1897
Sargan Test for Instrument Validity	23.76	0.2764

Overall, the dynamic GMM results offer valuable insights into the key drivers of GDP growth in the GCC. While oil rents remain important in the short term, the findings emphasize the need for diversification to mitigate the risks associated with resource dependency. The positive contributions of FDI, TB, and GCF highlight the importance of external and internal investments in driving long-term economic performance. At the same



time, addressing challenges such as inflation, unemployment, and political stability will be crucial for sustaining economic growth and building resilience against future shocks.

## 5. Discussion

This study provides critical insights into the relationship between market capitalization, oil rents, and socio-economic factors in shaping GDP growth in the Gulf Cooperation Council (GCC) countries. By employing a dynamic panel approach, we offer evidence supporting the need for economic diversification to sustain long-term growth. Our findings advance the literature on the resource curse and contribute to understanding the role of foreign direct investment (FDI) and gross capital formation (GCF) in resource-dependent economies.

### 5.1. Resource Curse and Economic Diversification

Consistent with the resource curse hypothesis, our results demonstrate that while oil rents contribute positively to short-term GDP growth, their long-term sustainability is questionable. The diminishing effect of oil rents as additional variables are introduced into our models supports Hypothesis 2, which posited that oil rents constrain long-term economic expansion. This finding aligns with prior research (Sachs and Warner 2001; Fuinhas et al. 2015) that argues oil-rich economies often experience underdevelopment of non-oil sectors, limiting innovation and making them vulnerable to external shocks. The addition of variables like foreign direct investment (FDI) and inflation further reveals the diminishing role of oil rents in driving GDP growth. As FDI flows increase, they contribute to economic diversification and the development of non-oil sectors, thereby reducing the relative importance of oil rents. Similarly, inflation can erode the purchasing power of oil revenues, further weakening their contribution to long-term growth. This supports the notion that oil rents, while significant in the short term, lose their influence as economies begin to diversify and rely on a broader base of investment and macroeconomic stability.

The contribution of our study lies in refining the resource curse theory by demonstrating that FDI plays a critical role in mitigating its adverse effects. While oil rents are significant in the short term, the importance of external investments such as FDI for long-term growth suggests that attracting foreign capital is essential for diversification efforts. These results underscore the necessity for structural reforms aimed at reducing reliance on oil and promoting non-oil sectors, including technology, manufacturing, and services. Future studies could investigate the specific mechanisms through which FDI fosters innovation and structural transformation in oil-dependent economies.

### 5.2. Market Capitalization and Financial Market Development

Although market capitalization exhibits a positive relationship with GDP growth, its significance is limited, particularly when compared to other variables such as trade balance and FDI. This partially supports Hypothesis 1, which suggested that while market capitalization can drive economic growth initially, its impact diminishes over time without structural reforms. The development of financial markets in the GCC remains crucial for funding diversification efforts, but our results suggest that financial market growth alone is insufficient without complementary policies focused on regulatory quality and governance.

These findings add to the literature by highlighting that market capitalization must be supported by broader economic reforms to foster long-term sustainability. High-ranking studies on financial markets in resource-dependent economies (e.g., Kurronen 2015) also emphasize the need for sound regulatory frameworks to ensure stability and mitigate potential risks. Policymakers should therefore focus on improving regulatory oversight and fostering financial market resilience as part of their broader economic diversification strategies.

### 5.3. The Role of FDI and Gross Capital Formation (GCF)

Our results indicate that FDI and GCF emerge as the most critical drivers of sustainable long-term growth. Hypothesis 3, which postulated that FDI and GCF play pivotal roles in

economic growth, is strongly supported by our findings. FDI's positive impact on GDP growth confirms its importance in providing external capital, technological transfer, and productivity improvements, echoing findings from [Borensztein et al. \(1998\)](#) and [Alfaro et al. \(2004\)](#).

Moreover, the significant effect of GCF highlights the importance of domestic investment in physical infrastructure, machinery, and equipment, which lays the foundation for diversification. Policymakers in the GCC should not only attract FDI but also focus on stimulating domestic investment through favorable policies and incentives aimed at increasing Gross Capital Formation. Future research could explore the specific sectors where FDI and domestic investment yield the highest returns in terms of diversification and innovation.

#### *5.4. Inflation and Unemployment*

Our findings show that inflation has a positive effect on GDP growth, particularly when it remains moderate, confirming the existence of an inflation-growth threshold, as suggested by [Khan and Ssnhadji \(2001\)](#). However, inflation must be carefully managed to avoid destabilizing economic growth. In contrast, unemployment exerts a significant negative effect on GDP, underscoring the urgent need for labor market reforms. High unemployment rates, particularly in the GCC, signal the underutilization of human capital, which is a key barrier to economic efficiency and diversification.

This result reinforces the importance of aligning education with market needs and promoting labor market flexibility. Policymakers must address unemployment through job creation strategies that target both the youth and female workforce, which remain underrepresented in many GCC economies. By investing in human capital development, the GCC countries can create a more dynamic labor market that supports long-term economic stability.

#### *5.5. Human Development and Long-Term Sustainability*

Although human development indicators (HDI) did not show immediate significance in the short-term analysis, the long-term benefits of investing in human capital cannot be overlooked. Our findings suggest that human capital development, through investments in education, healthcare, and research and development, will be crucial for sustained economic growth and diversification in the GCC. Human capital investments, particularly in education and healthcare, require time to build the necessary infrastructure, develop skilled labor, and improve institutional quality, which explains their limited impact on short-term economic growth. However, in the long run, these investments enhance workforce productivity, promote innovation, and contribute to economic diversification, all of which are essential for sustained growth in resource-dependent economies like those of the GCC.

This is consistent with research showing that human capital, measured through the HDI, plays a critical role in long-term productivity and innovation ([Mabrouk and Abdulrahim 2021](#)). Policymakers in GCC countries should continue to prioritize education and healthcare reforms, recognizing that these investments, while not immediately boosting GDP growth, are crucial for supporting future diversification efforts. Future studies should explore the long-term causal relationship between human capital development and economic diversification in resource-dependent economies.

#### *5.6. Vulnerability to Global Shocks and the Performance of Oil Rents*

GCC countries are particularly vulnerable to global economic shocks due to their heavy reliance on oil rents for government revenues and foreign exchange earnings. During global crises such as the 2008 financial crisis and the COVID-19 pandemic, global demand for oil plummeted, leading to severe fiscal pressures for these economies. Reduced government spending followed, further depressing economic activity and highlighting the inherent vulnerability that comes with overdependence on oil exports. Despite efforts to diversify, many GCC economies still lack sufficient non-oil sectors to absorb the economic

impact of oil price shocks. This limited diversification exacerbates their susceptibility to external shocks, as oil rents continue to account for a substantial portion of their GDP. The performance of oil rents during these crises emphasizes the urgent need for economic diversification into sectors such as technology, finance, and tourism, which are less exposed to fluctuations in global commodity prices.

Another factor contributing to the vulnerability of GCC economies is the volatility of global oil markets. Oil prices are influenced by a combination of geopolitical events, supply-demand imbalances, and shifts in energy policies, all of which exacerbate the economic impact of global crises on oil-dependent countries. During both the 2008 financial crisis and the COVID-19 pandemic, oil rents experienced substantial declines. In 2008, reduced industrial production and energy consumption caused a sharp drop in oil prices, while the COVID-19 pandemic severely affected global travel, trade, and industrial activity, leading to one of the steepest declines in oil prices in recent history. These periods exposed the volatility of oil rents and underscored the extent to which GCC economies are exposed to external shocks.

The weak performance of oil rents during these crises highlights the critical need for GCC countries to accelerate economic diversification. Developing non-oil sectors would not only reduce their reliance on oil revenues but also improve their resilience to future global shocks. Policymakers in the region must prioritize investments in innovation, infrastructure, and human capital to create more stable and diversified economies capable of withstanding external disruptions.

#### *5.7. Limitations and Future Directions*

While this study provides significant contributions to understanding economic growth in resource-dependent economies, certain limitations must be acknowledged. The analysis is based on macroeconomic data from 2000 to 2022, which may not fully account for more recent socio-political shifts in the region. Moreover, the reliance on quantitative measures, though insightful, might overlook qualitative dimensions such as institutional quality and governance practices, which are critical factors influencing economic growth and diversification.

To offer a more nuanced understanding of the dynamics driving economic transitions in the Gulf Cooperation Council (GCC), future research should integrate qualitative approaches, including case studies or expert interviews, that can capture the underlying institutional and governance-related factors. This would provide a more comprehensive perspective on the challenges and opportunities faced by resource-dependent economies as they seek to diversify.

#### *5.8. Policy Implications and Future Research*

The policy implications of this study are clear and actionable. As the diminishing impact of oil rents (OR) on GDP growth indicates, GCC countries must prioritize economic diversification to reduce their dependency on oil revenues and ensure long-term sustainability. The development of non-oil sectors, such as technology, tourism, and finance, is essential to buffer their economies against the volatility of global oil prices and the diminishing returns associated with the resource curse. A strategic shift toward fostering these industries will help create a more resilient economic base capable of withstanding external shocks.

In terms of financial market development, while market capitalization has contributed to short-term GDP growth, its long-term impact will remain limited without the implementation of broader structural reforms. To ensure that financial markets serve as a robust foundation for sustainable economic growth, policymakers should focus on enhancing regulatory frameworks, improving financial transparency, and promoting innovation in the sector. Such reforms will prevent financial markets from becoming vulnerable to speculative bubbles, ensuring their long-term stability and contribution to economic development.

The significant positive role of foreign direct investment (FDI) in promoting growth highlights the importance of creating a business-friendly environment that attracts foreign capital. Policymakers can enhance FDI flows by improving political stability, streamlining bureaucratic processes, offering targeted incentives, and ensuring strong legal protections for investors. By doing so, GCC countries can not only integrate more deeply into the global economy but also leverage FDI as a driver of technological advancements and innovation in non-oil sectors, thereby supporting long-term diversification.

Effective inflation management also emerges as a key policy priority. While moderate inflation is often associated with periods of expansion, policymakers must adopt prudent monetary policies to avoid excessive inflation that could erode purchasing power and undermine economic growth. Maintaining price stability is particularly critical as the region continues its diversification efforts.

Furthermore, the negative impact of unemployment (UN) on GDP growth points to the urgent need for labor market reforms. Policymakers should focus on creating job opportunities through entrepreneurship, supporting the private sector, and investing in vocational training to develop a workforce equipped for higher-skilled industries. Reducing unemployment will enhance productivity and contribute to building a more resilient economy capable of adapting to changing economic conditions.

The positive relationship between political stability (PS) and GDP growth underscores the importance of maintaining a stable and predictable political environment. Strengthening governance institutions, reducing political risks, and fostering public trust are critical to attracting both domestic and foreign investment. This will provide the foundation needed for successful long-term economic reforms and ensure that diversification efforts are sustainable over time.

#### 5.9. Future Research Directions

Future research could delve deeper into the sectoral impacts of diversification, focusing on identifying the non-oil industries with the highest potential for fostering innovation and sustainable growth in the GCC. Additionally, more in-depth studies on the role of FDI in promoting technological advancements and how these investments translate into long-term benefits for non-oil sectors would be valuable.

Another promising avenue is to explore the political economy of diversification, particularly the role of governance and institutional reforms in facilitating transitions away from resource dependence. Investigating how political and institutional factors influence the success of diversification strategies will provide insights into how countries can optimize their policy frameworks to support long-term growth.

Finally, future research should also consider the social dimensions of diversification, such as the impact of human capital development on innovation and productivity. Understanding how investments in education, healthcare, and workforce skills contribute to economic resilience and diversification will be essential for ensuring the sustainability of these efforts in the years to come.

## 6. Conclusions

This study has provided critical insights into the complex interplay between market capitalization, oil rents, and key socio-economic factors in shaping GDP growth in the Gulf Cooperation Council (GCC) countries. While oil revenues and financial markets have contributed significantly to short-term economic performance, their long-term sustainability is in doubt without accompanying structural reforms aimed at fostering diversification and improving governance.

Our findings reveal the diminishing returns of oil rents (OR) and market capitalization (Mcap) over time, highlighting the urgent need for economic diversification to reduce the region's reliance on natural resources. This study confirms the resource curse hypothesis, showing that while oil rents drive short-term growth, they constrain long-term economic expansion, especially as economies fail to develop non-oil sectors. This emphasizes the

need for strategic investments in industries such as technology, finance, and tourism, which are less exposed to global oil price fluctuations.

The study also identifies foreign direct investment (FDI), inflation (CPI), unemployment (UN), and political stability (PS) as critical factors driving economic performance in the GCC. The positive impact of FDI demonstrates the importance of creating a business-friendly environment to attract foreign capital, which not only promotes economic diversification but also drives innovation and technological advancements. On the other hand, the negative impact of unemployment underscores the pressing need for labor market reforms, particularly to better integrate underutilized groups, such as youth and women, into the workforce.

Moreover, our results indicate that inflation has a positive effect on GDP growth when managed at moderate levels, suggesting that price stability is crucial for sustained growth. Additionally, maintaining political stability is essential for attracting both domestic and foreign investment, providing a stable foundation for long-term economic reforms and fostering investor confidence.

By applying dynamic panel models, specifically the generalized method of moments (GMM), this study offers a deeper and more nuanced understanding of the factors influencing GDP growth in the GCC. This approach allows for the control of endogeneity and captures the persistent effects of past economic performance, offering robust insights for policymakers aiming to strengthen economic resilience. The findings suggest that economic reforms, the promotion of investment, and labor market improvements are critical for ensuring sustainable growth, particularly as the region faces ongoing global disruptions and oil market volatility.

#### Future Directions

Future research should build upon these findings by exploring additional dynamic factors that influence growth in resource-dependent economies. Moreover, applying similar models to other resource-rich regions could offer broader insights into how economies can transition from resource dependency to sustainable growth. Investigating the role of governance and institutional reforms in facilitating successful diversification strategies will be crucial, particularly in understanding how economies can mitigate the effects of global economic shocks. Such research will not only benefit the GCC but also provide valuable lessons for other regions navigating similar transitions.

**Funding:** This work was supported by the Deanship of Scientific Research, and the Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia (Grant No: A117).

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study are sourced from publicly available datasets provided by the World Bank and the International Monetary Fund (IMF). These datasets offer comprehensive macroeconomic indicators relevant to the research. The World Bank data can be accessed at <https://data.worldbank.org/> (accessed on 1 March 2024), and the IMF data are available at <https://www.imf.org/en/Data> (accessed on 1 March 2024).

**Conflicts of Interest:** The author declares no conflict of interest.

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