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Article

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Nexus between Governance and Economic Growth: Learning from Saudi Arabia

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Abstract: This study aims to examine the impact of good governance on economic growth in the context of Saudi Arabia. Based on secondary sources, this study applies quantitative research methods to highlight any relationship between the predictors and outcome variables. An econometric model has been developed to this effect which is tested using 36 years of data. GDP per capita represents economic growth while oil price, general index, trade openness, government spending, corruption perceptions index, and worldwide governance indicators were used as governance parameters in this study. The Saudi Arabian economy has gone through various reform initiatives resulting redefining and refitting economic activities in areas like the ownership structure of companies, the overreliance on petroleum sector, measures addressed in Vision 2030. None of the studies perfectly captures the broader governance framework and its impact on economic performance from macro perspective. Considering this as a research gap, this study identifies various governance constructs within the country context and deploys a thorough analysis to understand the macroeconomic status and to highlight some policy issues for different stakeholder groups. The study confirms a positive relationship of general index, trade openness and oil price with economic growth. By bringing moderating (general index on the relationship between GDP per capita and oil price) and mediating (oil price on the relationship between GDP per capita and government expenditure) effect, this study brings additional insights on the macroeconomic dynamism of the country which has undergone major economic reforms.

Subjects: Governance; Economic Growth; Saudi Arabia; Mediation; Moderation; Hierarchical Regression Analysis

Keywords: governance; economic growth; Saudi Arabia; mediation; moderation; hierarchical regression analysis

Subjects: F43; F63; G38; M48; O11; O47

1. Introduction

Governance and economic growth are deeply interconnected (Asmara & Sumarwono, 2021) though a debate exists whether economic growth drives good governance or good governance drives economic growth. Governance is a widely used concept. It is described as an authority operating through institutions and customs in a country (Kaufmann & Kraay, 2002). It has two dimensions, i.e., market-enhancing and growth enhancing. The goal of governance should be to

improve market-enhancing conditions (Kaufmann et al., 1999a; North, 1991). However, market-enhancing governance attempts seem to be poor in developing countries due to weak institutional structure and political mindset. On the other hand, growth-enhancing governance initiatives aim to ensure efficient resource utilization and productivity. However, growth-enhancing governance may expedite the chances of corruption (Ahmad et al., 2012) along with other forms of benefits to the beneficiaries of those policies. A judicious combination of market and growth enhancing dimensions is therefore warranted to drive the economy towards targeted growth.

Since the country introduced Vision 2030 on 25 April 2016, the economy of Saudi Arabia has undergone various reform initiatives such as privatization, reforms in labor market, and opening the market to foreign investors. In addition to reducing the dominance on petroleum sector, social spending has been increased, a privatization plan has been introduced and the country's capital market has been strengthened to accelerate economic growth. It is also diversifying its business ownership patterns. In this context, this study is initiated to show the impact of governance on the country's economic growth. Five years have passed since the implementation of the development blueprint (Vision 2030). It is important that the policy makers monitor their performance and initiate any reconciliation, if necessary. As none of the study has addressed this issue, this study considers this as a research gap and attempts to fill up the gap.

The researchers faced difficulties in translating the gap into research questions. Studies addressing country level governance are not abundant and there is a shortage of relevant data. To overcome these challenges, the research has been conducted based on secondary data which doesn't require any validation. The development blueprint of Saudi Arabia, Vision 2030, has been used to identify the target and reform initiatives of the country. Based on this analysis, a conceptual framework is designed and tested. This study will work as a baseline study for the researchers in the days ahead. The selected methodology has also helped the researchers to address the research context clearly whereby the impact of various constructs of governance on economic growth have been tested in an incremental way.

The main objective of the study is selected as, "does Saudi Arabia's governance support economic growth?" It also captures any moderating and mediating effect that may prevail between economic growth and governance in a macroeconomic perspective. The contribution of the study is four-fold. Firstly, it proposes a wider framework to explain governance considering both market and growth enhancing dimensions. Worldwide Governance Indicators (WGI) were used as market-enhancing governance indicator and Oil Price, Government Expenditure, General Index and Trade Openness are used as growth-enhancing governance indicators. Since growth-enhancing governance can lead to corruption, this study also looked at the Corruption Perceptions Index as a predictor of governance. One important aspect of the study is that it proposes a conceptual framework that fully considers country-level governance parameters. This conceptual framework is an important value addition of this study where economic performance is shown as a collective effort of internal (both direct and indirect) and external constructs.

Secondly, the study also claims a methodological contribution. Hierarchical regression analysis is used in this study as a quantitative method to highlight the impact of governance parameters on Saudi Arabia's economic growth while controlling for the impact of few predictors. The method reflects the incremental effect of different constructs on economic performance. Thirdly, it applies mystery in looking into the moderating and mediating effects two important constructs (general index and oil price) in explaining the relationships between governance and economic growth. It provides additional insights into predictors for regulatory attention. And finally, the study provides some policy prescriptions for immediate attention which made the study special. The study concludes that three of the six predictors (Trade Openness, General Index and Corruption Perceptions Index) become statistically significant in explaining economic growth. Three other predictors (Oil Price, Government Expenditure and WGI) show no impact on Saudi Arabia's economic growth. However, oil price shows a mediating effect on the relationship between economic

growth and trade openness and between economic growth and government expenditure. These results confirm that Saudi Arabia prioritizes the growth-enhanced dimension of governance and fails to link the market-enhanced dimension of governance to economic growth. The economy is taking advantage of Vision 2030; however, the effectiveness of the market structure needs to be verified, which is a very important result of this study.

The rest of the work is structured as follows. Section 2 presents the country context and positioning of the study, followed by a literature review and hypothesis development in Section 3. The research methodology is discussed in Section 4, followed by analysis and results in Section 5. Section 6 contains discussion, and the paper ends with a conclusion in Section 7.

2. Country Context and Positioning of the Study

Corporate governance has attracted a great deal of attention due to the failures of large corporate giants (e.g., Enron, WorldCom, Tyco etc.) with which the century began. Regulators are seriously looking for a solution that has resulted in a corporate governance mechanism. In addition to codes of governance, regulators also issue strict requirements to ensure transparency and accountability in corporate affairs, affirming the axiom of a separate corporate entity to its owners. This study strategically adopts the context of Saudi Arabia to examine any relationship between country level governance and economic growth. It provides rich context for a few reasons. First, the economy has been liberalized in recent years, opening up different sectors to reduce over-reliance on oil exports. Second, the ownership pattern of businesses is changing from a family business to a corporation, and various market regulators have been instrumental in developing related policies and laws. Bazhair et al. (2022) has already confirmed that Saudi firms gradually adjust to their optimum performance level due to changes in their ownership structure. Third, as an Islamic state, Saudi Arabia offers a different context due to the economic activities fueled by the Shariah principle. Finally, Vision 2030 makes every effort to guide the Saudi economy towards development and involves all parties in the process with various reform proposals. This study aims to examine the readiness of the economy in this regard and will serve as a baseline study.

Economic growth requires financial liberalization (Mansour & Hassan, 2021). Financial liberalization, on the other hand, bring interest rates closer to competitive market and can boost growth by allocating resources efficiently (McKinnon, 1989). Oladipo (2011) examined the long-term effects of trade liberalization on economic growth in Mexico (1980–2008) and proposed that economic growth is mainly explained by trade liberalization and the level of capital (investment) in the long run. Aiming to reduce economic vulnerability and heavy reliance on oil market wealth, the Kingdom of Saudi Arabia has opted for decentralized, private market-based economic activities (Auty, 2001). The country's economic growth depends heavily on oil revenues (Haque & Khan, 2019). The oil sector accounts for 43.21% of the total gross domestic product (GDP) in 2018 where oil exports make up 78.67% and non-oil exports only 21.32% (SAMA, 2018). As a liberalization policy, Vision 2030 starts comprehensive economic and social initiatives. It emphasizes the development of a diversified and sustainable economy, shifting from dependence on the petroleum sector as the main pillar. It also focuses on shifting the main driver of economic growth and prosperity from the public to the private sector.

Saudi Arabia is characterized by a strongly family-owned business that has a deep-rooted ancient tribal solidarity system for merchant life involving complex ties compared to the West. Saudi family businesses have significant contribution to the GDP and national employment (Al-Dubai et al., 2012). Traditionally, family businesses have been one of the most important pillars of the global economy (Lucky et al., 2011). Family businesses account for almost 95% of the total number of listed companies in the member states of Gulf Cooperation Council (GCC) including Saudi Arabia (Alkahtani, 2021). Saudi Arabia is in the process of bringing family businesses to the capital market. A strong capital market is a barometer for economic development and growth. Corporate governance in family businesses has its own style due to ownership, control and family tradition, which is also influenced by Islamic principles. Vision 2030 proposes reforms in governance in all sectors that

contribute significantly by adhering to the norms and legislation that contribute to expanding the country's perspectives and investment opportunities and preventing corruption.

The corporate governance framework in Saudi Arabia has been developed over decades. The first initiative was taken in 1985 when the Ministry of Commerce and Industry directed the enforcement of the Disclosure and Transparency standard leading to the recognition of corporate governance (Meteb, 2015). In 1999, the Supreme Economic Council was established to improve the performance of the Saudi economy. The Capital Markets Law was enacted in 2003 establishing the Capital Market Authority Board responsible for issuing corporate governance regulations. In 2005, the Saudi Chamber of Commerce conducted a survey to review capital market fundamentals. The survey concludes that the Saudi Capital market lacks even basic fundamentals. In 2006, Saudi experienced the first market crash. The Tadawul Index is down about 52% from the Index of 16,712 at the end of 2005 (Ramady, 2007). The Saudi government, the Saudi Capital Markets Authority felt the urgency to initiate a corporate governance project to protect and empower the market and investors from future failures. The Saudi Capital Market initiated a corporate governance project on 3 July 2006, and the very first corporate governance code was issued on 12 November 2006 (M.A.S. Al-Faryan, 2020). Within 2 years the market experienced a second crash in 2008 and in 2009 some minor changes were made in its feature to keep up with the international practices. Compliance with the CG principles became mandatory in 2010 (M. A. S. Al-Faryan, 2021; Al-Zahrani, 2013). The Capital Monetary Authority of Saudi Arabia published a new corporate governance code for public companies listed on the Saudi Stock Exchange in April, 2017 (Naif & Ali, 2019). Compared to the older ones, the new features of Saudi Arabia Corporate Governance 2017 bring more transparency to the system, established shareholder and board of directors' rights in a more reasonable manner, make the chain of command clearer and more transparency and commitments regarding their responsibilities and duties.

The Saudi Arabian corporate governance model is inspired by the Anglo-Saxon model. In this model, managers are accountable to the board and the board is accountable to shareholders. Although the shareholder cannot participate in day-to-day business activities, he is responsible for guiding the board of directors to decide who will run the business. Therefore, the Anglo-Saxon model rests on the protection of shareholders' rights and interests greatly. Saudi Arabia always maintains good relations with developed countries, especially in the West. As a result, Saudi Arabia follows Western tradition in implementing various business practice regulations and standards (e.g. auditing standards, accounting practices and standards, etc.), which are later modified according to the Islamic context (M.A.S. Al-Faryan, 2020). Al-Harkan (2005) also confirms that Saudi Arabia adopts international accounting and auditing standards or corporate governance practices and then amends them to conform with Saudi Islamic law.

Saudi Arabia follows Islamic law where ethics and equality of people are strictly followed. The Saudi constitution is based on the Quran and Sunnah. The basis for the corporate governance framework emanates from Tawhid, the foundation of Islamic faith (Al-Faruqi, 1982). Since corporate governance can determine the future of a company, it is crucial to implement excellent governance at all levels of the company or group in order to fulfill the organization's various missions and objectives in a transparent and effective manner. These goals are also achieved through a Shariah corporate governance system. Like the Anglo-Saxon corporate governance model, the Saudi model prioritizes shareholders or investors. The corporate governance of Saudi Arabia is designed in accordance with the Saudi Constitution and Islamic Sharia law. In short, economic liberalization, family concentration in company ownership, Western vs. Islamic philosophy in adopting corporate governance policies, and Vision 2030 collectively develop a rich context for Saudi Arabia to explore any relationship between governance and economic growth.

3. Literature Review and Hypothesis Development

In order to achieve sustainable economic growth and development, governance acts as a very important soft infrastructure for all economies. Because of its link to economic growth, governance

becomes a major issue in any development debate (Gaghman, 2019). An economy's macroeconomic development is likely to be deeper and more stable if it manages to put its microeconomic and institutional structures in order (Brouwer, 2003). Based on this premise, we initiated a study in the context of Saudi Arabia to show the relationship between good governance and economic growth as an interplay between micro and macro institutions.

3.1. Governance and Economic Growth

As a concept, governance is very broad and multifaceted. It focuses on how the state exercises power to manage various economic and social components (World Bank, 1994). In the early 1990s, the importance of the relationship between economic growth and governance began to be studied (Perkins et al., 2006; World Bank, 1994) and has become almost self-evident (Kadhim, 2013). Studies (Campos & Nugent, 1999; Kaufmann et al., 1999b, 1999a) found a positive impact of improved quality of governance on economic growth. Studies by the World Bank (Kaufmann & Kraay, 2002), the United Nations (United Nations, 2000) and the International Monetary Fund (IMF) confirm that good governance drives economic growth. Governance contributes to better economic performance and promotes sound policy making in a country (Rodrik, 2008). The Saudi Vision 2030 is also based on the premise that there is a strong relationship between economic growth and good governance (Hammad, 2019). Kaufmann et al. (2010) proposed few indicators to explain high governance qualities such as absence of terrorism and violence, political stability, improved regulatory mechanisms, proficient government policy formulation and implementation, ensuring the rule of law and reduced corruption. In this study, we adopted an exploratory study to examine the relationship between economic growth and good governance in the context of Saudi Arabia. Saudi Arabia is one of the economically strongest countries in the world. With economic freedom score of 66.0, the economy of the country becomes the 63rd freest in the 2021 Index. In 2019 the nominal GDP of Saudi Arabia in current US dollars is $792.97 billion. According to Global Share of Islamic Finance Banking Assets, 2015, Saudi Arabia owns a large number of stocks accounting for 31.70% of assets, and the asset growth rate is 17% (Hirst, 2015). All of these developments reflect the maintenance of good governance that makes their system more transparent and creates accountability.

3.2. Economic Growth

Economic growth is the process of changing the economic conditions of a country on an ongoing basis towards a better state, namely an increase in the physical production of goods and services prevailing in a country (Andesta et al., 2022). Economic growth is measured through various macroeconomic parameters. To measure annual economic growth, the World Bank (2004) prefers the percentage increase in gross domestic product (GDP) or gross national product (GNP). Various studies (Adams & Mengistu, 2008; Pradhan, 2011) find that economic growth is related to government practices and how governments govern both directly and indirectly. All the nations, trying to increase their GDP per capita for ensuring the well-being of their citizens, are affected by economic growth (Adams & Mengistu, 2008; United Nations Development Program, 2010). To measure economic growth, annual real GDP per capita is very popular in use. For example, Lahouij (2017) used GDP per capita based on constant 2005 US dollars to measure economic growth. Some researchers (e.g., Fayissa & Nsiah, 2013; Al Mamun et al., 2017; Shao, 2016; Wong et al., 2005) prefer GDP per capita, some scholars use GDP growth rate (Adedokun, 2017), while many other studies used PPP-adjusted GDP per capita (Harttgen et al., 2012; Islam, 1998; Kentor, 1998; van den Bergh, 2009; Wong et al., 2005). To measure economic growth, we used GDP per capita in this study.

3.3. Governance

Governance refers to the general participation in the political and decision-making mechanisms by institutions other than government (de Ferranti et al., 2009). It describes the way of acquiring and exercising powers by public officials and institutions to organize public policy and make public goods and services available (de Ferranti et al., 2009). In the late 1980s, various international companies adopted and developed the concept of governance to denounce extravagancy and

waste in the management of public funds. Because of its authority in providing countries with the socio-economic resources needed for development, the World Bank decides on the state of good governance in countries. Governance helps to close potential loopholes to protect the private or public economic institutions from possible corruption attempts (Meteb, 2015). Governance is an explanatory variable used in this empirical study that is not directly observable. Academics and researchers use different proxies for governance. Some adopted the governance quality sub-index, such as, government effectiveness in WGI (Kurtz & Schrank, 2007), and six sub-indices in WGI (Setayesh & Daryaei, 2017), while others used various comprehensive indices of governance quality, such as International Country Risk Guide (Olson et al., 2000), WGI (Adedokun, 2017), etc. By considering the variables affecting the performance of public and private sector institutions, this paper highlights the multidimensional perspective for measuring governance.

3.3.1. Oil price

Oil price (OP) is a very important macroeconomic parameter in oil producing countries, since the economy of such a country largely depends on the petroleum sector. Based on empirical studies for the period 2000–2010, Fiti et al. (2016) argued that economic activities in oil producing countries are directly influenced by OP. Burakov (2017) also found a strong relationship between growth and OP in Russia. In Saudi Arabia, numerous studies have examined the relationship between OP and macroeconomic performance (Alkhateeb, 2021; Alkhateeb & Mahmood, 2020; Alkhateeb et al., 2017; Mahmood & Alkhateeb, 2018; Mahmood et al., 2020; Mahmood & Furqan, 2020; Mahmood & Murshed, 2021; Mahmood, 2021; Mahmood & Zamil, 2019). OP is found positively related with the foreign direct investment (Mahmood & Alkhateeb, 2018). In other studies (Foudeh, 2017; Nyangarika et al., 2018) a strong association between income and OP is found in Saudi Arabia.

The impact of OP fluctuations on economic growth varies by country and sample (Odhiambo, 2020). The literature brings mixed results about the direction of the OP effect on economic growth. Higher oil prices lead to higher revenues for oil exporting countries (Dabachi et al., 2020; Foudeh, 2017; Jahangir & Dural, 2018), however, they are negative for importing countries (Murshed & Tanha, 2020; Rahman & Majumder, 2020). Changes in OP affect economic growth significantly in some MENA countries while such impact is insignificant for others (Berument et al., 2010). OP fluctuations have significant impacts on GDP in Saudi Arabia (Mahmood & Zamil, 2019), in Bahrain (Abou Elseoud & Kreishan, 2020) and in GCC countries (Vohra, 2017).

Saudi Arabia is the leader in OPEC and the country's economy is heavily dependent on oil. The government owns and operates much of the country's major industries through its oil company, Aramco. In line with the Saudi Vision 2030, the country needs to diversify its economy to reduce its dependence on oil. Over-reliance on oil, the strategy of economic diversification, the existing OP growth model and the Vision 2030 raise governance issues in this economic dimension. Very logically, this study considers OP as a parameter of governance in Saudi Arabia and looks for a relationship between OP and economic growth, using the following hypothesis to test.

H1: There is a positive relationship between OP and economic growth.

OP is also found in relation to stock prices in various markets. Using weekly data, Siddiqui et al. (2019) examined the role of OP in the GCC market and found the asymmetry in the Saudi market. Khamis et al. (2018) found a weak reaction of the Saudi stock market to the OP decline. Arouri and Fouquau (2009) assess the short-term impact of OP shocks on the stock markets of GCC countries and find a significant positive association between OP and stock market returns for Oman, Qatar and the United Arab Emirates (UAE); however, their model fails to find any relationship for Kuwait, Bahrain and Saudi Arabia. Using a different methodology, Arouri et al. (2010) find a positive and statistically significant relationship between OP and stock market returns for Oman, Qatar, UAE

and Saudi Arabia. To create a new dimension in the study, we used general index of Tadawul as a moderating variable to identify any moderating effect of the general index on the relationship between GDP per capita and OP. We took the following hypothesis to test.

H2: There exist a moderating effect of general index on the relationship between GDP per capita and oil price.

3.3.2. Trade Openness

Economic growth is influenced by openness to international trade. Few studies (e.g. Chang et al., 2009; Dollar & Kraay, 2004; Frankel & Romer, 1999; Freund & Bolaky, 2008) report positive effects, few other studies (e.g. Musila & Yiheyis, 2015; Ulaşan, 2015) deny the existence of a positive relationship between trade and economic growth, while others (e.g. Ulaşan, 2015; Vamvakidis, 2002) find no support for the trade-driven growth hypothesis. Various factors (such as trade composition, economic status, technological advances and adjustment, domestic capital accumulation, human capital development) collectively explain differences in the link between trade openness and economic growth across countries. Rassekh (2007) examines the trade-growth nexus for 150 countries and concludes that lower-income countries benefit more from international trade than higher-income countries. Another study (Afzal & Hussain, 2010) in Pakistan reports no association between openness (both import and export) and economic growth. However, Klasra (2011) and Shahbaz (2012) challenge this finding and confirm the causal relationship between trade and economic growth.

Trade is made up of exports and imports of goods and services, measured as a percentage of GDP (Lahouij, 2017). In the international trade literature, exports and imports are two complementary and inseparable factors, although their respective proportions may vary. When the percentage of trade to GDP is high, a nation becomes more open to international trade between countries. As a result, trade percentage of GDP is used as a popular indicator to measure trade openness. It uses the value of exports and imports as a percentage of GDP (Fetahi-Vehapi et al., 2015; Zahonogo, 2016). International trade policy is a very important area representing country-level governance and we take the hypothesis to study the relationship between trade openness and economic growth.

H3: There is a positive relationship between trade openness and economic growth.

Oil is a major source of income for Saudi Arabia. A falling oil price leads to a decline in export earnings, and a rise in it accelerates economic growth (Berument et al., 2010). Thus, an increase in the price of oil has a positive and direct impact on oil-exporting countries, while it has a negative impact on economic growth in oil-importing countries (Oriakhi & Osaze, 2013). Consequently, this study looks for mediating effects of oil prices on the relationship between trade openness and economic growth, and between government expenditure and economic growth. We took the following hypotheses to test:

H3a: There exist mediating effect of oil price on the relationship between GDP per capita and trade openness

H3b: There exist mediating effect of oil price on the relationship between GDP per capita and government expenditure

3.3.3. General Index

Financial markets play an important role in generating strong economic growth by redirecting funds from unproductive to productive purposes (Durusu-Ciftci et al., 2017). Various studies (Ali & Fei, 2016; Boubakari & Jin, 2010; Seven & Yetkiner, 2016) find a positive correlation between capital markets and economic growth. Ho (2019) confirms the positive influence of economic growth on the stock market development in South Africa, Edweib (2013) in Libya, Alam and Hussein (2019) in Oman, Kolapo and Adaramols (2012) in Nigeria. Mukundi (2013) aimed to measure the relationship between financial deepening and economic growth and found that a 1 percent increase in market capitalization would lead to a 10 percent increase in GDP growth. Algaeed (2021) examined the impact of capital market developments on GDP per capita growth in the Saudi Arabian economy for the period 1985 to 2018 and found that the share price index causes GDP per capita. Since the literature suggests a visible link between financial market and economic growth, and the financial market demonstrates governance practice, we considered the General Index of Saudi Stock Exchange as a governance parameter and used the following hypothesis to test:

H4: There is a positive relationship between general index and economic growth.

3.3.4. Government Expenditure

Government expenditure is an important indicator of economic growth, provided that it is spent judiciously to speed up the economy's engine of development. Some studies (Say, Ahsan et al., 1996; Holmes & Hutton, 1990; Ram, 1986; Singh & Sahni, 1984) report a positive impact of government expenditure on economic growth, while some other studies (such as Barth et al., 1990; Landau, 1983, 1986) find negative consequences. Government expenditure is like a double-edged sword (Ahmad & Loganathan, 2015). On the one hand, it accelerates aggregate output, on the other hand, it could crowd out private investment and hamper overall economic performance (Alshahrani & Alsadiq, 2014). In growth theory, a fundamental question is whether government spending causes economic growth, and the empirical evidence is inconclusive (Alshahrani & Alsadiq, 2014). Bataineh (2012) finds a positive association in Jordan, while Zamanian et al. (2012) provide a mixed result in 12 Asian developing countries, six countries confirming causality while the results of other countries could not support the causal relationship. Government final consumption expenditure is commonly used as an indicator of government expenditure (Lahouij, 2017). Pryor (1968) used government consumption expenditure, Goffman (1968) used total government expenditure, Peacock and Wiseman (1967) looked at the percentage of total government expenditure in GDP and Gupta (1967) used total government expenditure per capita. In this study, we take aggregate government expenditure as a governance parameter to determine its impact on economic growth.

H5: There is a positive relationship between government expenditure and economic growth.

3.3.5. Corruption

Corruption and economic growth sound undesirable, but they have a certain relationship. The result varies depending on the context. Controlling corruption increases economic growth (Samarasinghe, 2018). The relationship between corruption and economic growth becomes insignificant according to Pere's (2015) study, while another study (Mo, 2001) reports a 0.72% decrease in the growth rate with a 1% increase in corruption. Various institutional qualities, such as culture and history, also affect the level of corruption (Mo, 2001). Corruption is linked to a country's economic, social, cultural and legal systems (Ata & Arvas, 2011). Drury et al. (2006) report that corruption does not have a significant impact on growth in democracies, but has strong negative effects in non-democratic countries. Ahmad et al. (2012) shows that there are many ways in which corruption can slow down economic growth, such as the reduction of domestic and foreign direct investments, and excessive government spending. By far the best-known index for measuring

corruption is the Corruption Perceptions Index (CPI), which is published annually by Transparency International (Søreide, 2006). In this study, we used Transparency International's CPI as a proxy for corruption. For further investigation, the following hypothesis is assumed:

H6: There is a positive relationship between Corruption Perceptions Index and economic growth.

3.3.6. Worldwide Governance Indicators

Economic growth is seriously affected by the quality of government (Rothstein & Teorell, 2008). The Worldwide Governance Indicators (WGI) are widely used as an indicator to measure the quality of government (Absadykov, 2020). Kaufmann et al. (1999b) developed WGI, consisting of six basic dimensions of governance, such as political stability and absence of violence/terrorism, voice and accountability, government effectiveness, regulatory quality, corruption control and the rule of law (Kaufmann et al., 2010). Several studies (Das & Andriamananjara, 2006; Kurtz & Schrank, 2007; Neumayer, 2002) have used these indicators as explanatory variables. Kaufmann and Kraay (2002) examined the relationship between the WGI and income per capita and found a positive relationship between income per capita and quality of governance in all countries. However, Chauvet and Collier (2004) find that developing countries with poor governance lead to lower economic growth. Ensuring economic growth requires a set of fundamental institutions (North, 1991; Rodrick & Subramanian, 2003), such as well-defined property rights, unbiased contract enforcements, low information gaps between buyers and sellers, and stable macroeconomic conditions. Based on the above discussions, this study considers the aggregate value of WGI as a measure of the quality of governance and looks for its relationship to Saudi Arabia's economic growth. The relevant hypothesis takes:

H7: There is a positive relationship between WGI and economic growth.

4. Research Methodology

This quantitative study is based on secondary data sources. We prepared the dataset for the study from various sources such as the World Bank, Saudi Stock Exchange, Capital Market Authority, etc. The time series cover a period of 36 years from 1985–2020. Based on literature review, we selected GDP per capita as an outcome variable and nine predictor variables as indicated in the following table (Table 1):

Table 1. Variables used in the study

Variables	Data Sources
Gross Domestic Product per Capita (GDP)	General Authority for Statistics
Worldwide Governance Indicators (WGI)	World Bank
Real Effective Riyal Exchange (RERE)	IMF's International Financial Statistics
Investment (INVT)	Capital Market Authority
Government Revenue (GR)	Ministry of Finance
Government Expenditure (GE)	Ministry of Finance
Trade Openness (TO)	General Authority for Statistics
General Index (GI)	Saudi Stock Exchange (Tadawul)
Oil Price (OP)	OPEC
Corruption Perceptions Index (CPI)	Transparency International

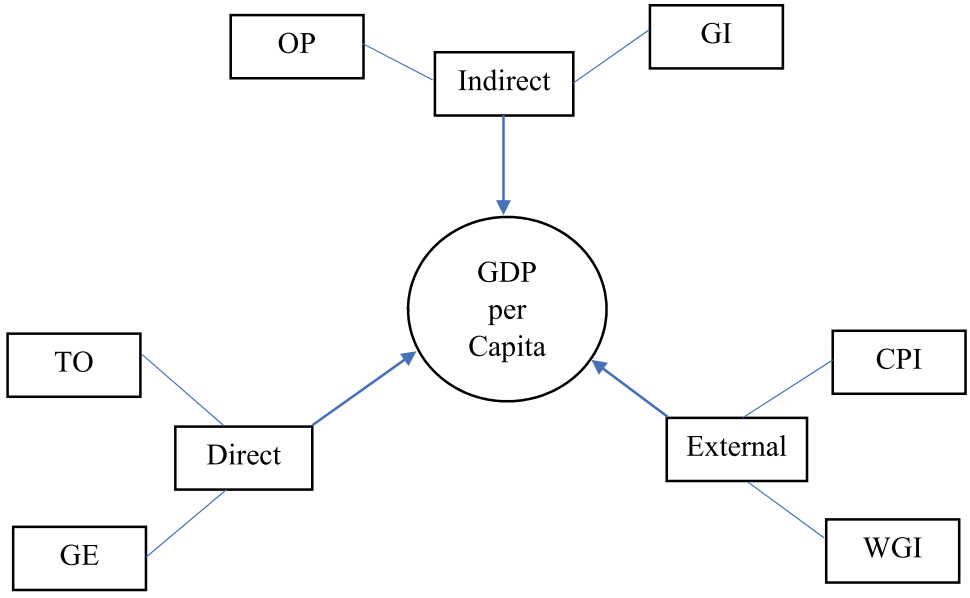

Figure 1. Conceptual framework of the study.

During the model validation process, we excluded three predictor variables (real effective riyal exchange rate, investment, and government revenue) from our analysis as these variables do not fit with other variables due to high correlation (above 0.9) and the presence of multicollinearity. Our final model consists of six predictors with the following conceptual model (Figure 1).

Of the six predictors, two macroeconomic parameters (TO and GE) directly affect GDP per capita, while two other predictors (OP and GI) indirectly affect the outcome variable. Two remaining predictors (CPI and WGI) are produced by external parties that explain the state of the country's governance. Measurements of the variables are shown below (Table 2):

First, we included all six predictor variables and ran the regression model to observe their predictability for our selected outcome variables. To gain more insight into our analysis, we applied hierarchical regression analysis, where we include predictor variables in three different steps in our analysis. First, we try to control the impact of OP and TO on GDP per capita. In the next step, we include the GI and GE to highlight the additional impact of these predictors on GDP per capita. In

Table 2. Measurement of variables

Variables	Period	Measurements
GDP per Capita	1985–2020	Natural log of GDP per Capita
TO	1985–2020	Natural log of total export and import
GE	1985–2020	Natural log of government expenditure
OP	1985–2020	Real oil price using the OPEC basket deflator
GI	1985–2020	Index value (1000 = 1985) of Saudi Stock Exchange (Tadawul)
CPI	2003–2020	Values in a 100 scale
WGI	1996–2020	Simple average of six indicators (−2.50 to +2.50 range)

our final model, we include the CPI and WGI to examine the impact of these variables on the country's economic growth, which is approximated by GDP per capita. The hierarchical regression analysis is applied in three different steps using SPSS and the econometric models for these steps are given below:

Model 1

$$lnGDP_t = \alpha_0 + \beta_1 OP_t + \beta_2 lnTO_t + \varepsilon_0$$

Model 2

$$lnGDP_t = \alpha_0 + \beta_1 OP_t + \beta_2 lnTO_t + \beta_3 GI_t + \beta_4 lnGE_t + \varepsilon_0$$

Model 3

$$lnGDP_t = \alpha_0 + \beta_1 OP_t + \beta_2 lnTO_t + \beta_3 GI_t + \beta_4 lnGE_t + \beta_5 CPI_t + \beta_6 WGI_t + \varepsilon_0$$

Where, $lnGDP_t$ gives the natural logarithm of the annual GDP per capita in the period t, α_0 is the constant (intercept), $\beta_{i=1,2,\ldots 6}$ refers to the beta value of each predictor variable, symbolizes the oil price in the period t, CPI_t represents the corruption perceptions index in period t, represents the natural logarithm of openness in period t, GI_t refers to the general index in period t, $lnGE_t$ represents the natural logarithm of government expenditure in period t, WGI_t refers to the world-wide governance indicators in period t and ε_0 represents the error term. To derive WGI's score, we averaged the score of six indicators, with each indicator receiving a score in a range of −2.5 to 2.5. We have converted GDP per capita, trade openness and government expenditure to a natural logarithm to ensure normality. Our main goal is to determine whether different governance-related predictors have a significant impact on the economic growth of the Saudi economy as measured by GDP per capita, which is reflected in our full model (Model 3). By using hierarchical regression analysis, we aim to understand the relative importance of different predictors while controlling only a few of them.

We tested the relevant assumptions for performing hierarchical multiple regression. KMO and Bartlett's tests confirm the suitability of the sample. An examination of the correlations revealed no concerns about a high correlation between the independent variables. Both tolerance and VIF values are within accepted limits, confirming the absence of multicollinearity (Value of VIF is below 10, Hair et al., 1995). An examination of the Mahalanobis distance values showed no multivariate outliers. The assumptions of normality, linearity, and homoscedasticity are confirmed by analysis of residual and scatter plots (Hair *et al.*, 1998).

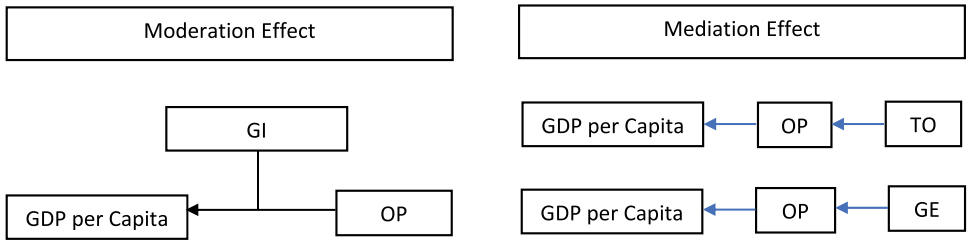

Figure 2. Moderation and mediation effect.

As we noted in the literature review section, we also extended the analysis to understand the effect of mediation and moderation. Both indirect parameters (OP and GI) were our target for mediation and moderation (Figure 2). We used the GI as a moderating variable to examine the moderating effect of GI on the relationship between GDP per capita and OP. We also tested the mediating effect of OP on the relationship between GE and GDP per capita and between TO and GDP per capita.

To test mediation, we estimated a set of regression models as proposed by Judd and Kenny (1981). We regressed the mediator (OP) on the independent variables (GE and TO), then we regressed the dependent variable (GDP per capita) on the independent variables (GE and TO) and finally we regressed the dependent variable on both independent variable and on the mediator, looking for evidence of full or partial mediation. For the moderation effect, we run a three-level hierarchical regression model that includes the interaction term in the third level. Details of the analysis are presented in the next section.

5. Analysis and Findings

We examine the impact of governance parameters on Saudi Arabia's economic growth. The results presented here are based on various types of statistical analysis that we performed on data from secondary sources. Besides identifying the strength of predictability of different governance-related parameters on economic growth, we also highlighted the mediating and moderating effect of selected parameters on economic growth. We applied hierarchical multiple regression analysis to show the impact of control variables on economic performance. This section presents the results and analysis. Descriptive statistics of the data used for drawing inferences are presented below in Table 3.

Table 3. Descriptive Statistics

Variable	Obser vations (Years)	Mean	Median	Minimum	Maximum	Standard Deviation
GDP per Capita	50	12,326.43	9038.405	1432.756	25,413.34	6720.003
log GDP per Capita	50	9.248872	9.10895	7.267355	10.14303	0.6426099
Real oil price (OPEC)	50	44.11014	39.015	12.88	92.4	22.39196
Total export and import	50	652,013.4	333,246.5	20,971	2,040,106	607,039.8
log Total export and import	50	12.90392	12.71662	9.950896	14.52851	1.08538
Index of the Saudi Stock Exchange	36	4709.07	3477.83	646.03	16,712.64	3755.243
Annual Government Expenditure	50	378,234	236,038.5	8130	1,140,603	334,627.1
Log Annual Government Expenditure	50	12.40413	12.37175	9.003316	13.94707	1.092743
CPI	18	43.38889	45.5	30	53	7.769767
WGI	25	−0.333746	−0.339903	−0.483384	−0.213909	0.0651638

Table 4. Summary of the results of multiple regression model

Dependent Variable	Independent Variable	Standardized Beta Coefficient
GDP per Capita	(Constant)	−2.847
		(2.267)
	Corruption Perceptions Index	.340**
		(.009)
	Oil Price	.152
		(.004)
	General Index	.192**
		(.000)
	Trade Openness	.676***
		(.149)
	Government Expenditure	.093
		(.099)
	Worldwide Governance Indicators	−.155*
		(.726)
	R-squared	.966
	Adjusted R square	.948
	F	52.305***

Standard errors are reported in parentheses.
*, **, *** indicates confidence at the 90%, 95%, and 99% level, respectively.

5.1. Multiple Regression Analysis

We perform multiple regression analysis, considering GDP per capita as dependent variable, while CPI, OP, GI, TO, GE and WGI serve as predictor variables. This is done to examine the model fit and significance of individual parameters with the power of their respective predictability on the economic growth parameter. The full model becomes statistically significant ($F = 52.305$, $p < 0.001$) with the adjusted R-squared value of 0.948. However, out of six predictor variables, only three become statistically significant at 5%. A summary of the results is given below (Table 4):

5.2. Hierarchical Multiple Regression Analysis

Due to the nature of the Saudi Arabian economy, we want to observe the influence of different predictors on the economic growth parameter controlling few other predictors. We check the correlation coefficients along the variables and the level of significance. We run a three-step hierarchical multiple regression model by adding two of the predictors at each level. In step 1, we added OP and TO. In step 2, we added GE and GI to monitor their impact on GDP per capita while controlling for the predictors added in step 1. Finally, in step 3, we added the CPI and WGI, while we controlled four predictors entered into the model in steps 1 and 2. A summary of the hierarchical regression model is presented below (Table 5):

Hierarchical multiple regression revealed that in Step 1, OP and TO contributed significantly to the regression model ($F = 53.684$, $p < 0.001$) and accounted for 87.73% of the variation in GDP per capita. OP is negatively related to GDP per capita and is not statistically significant, but TO is positively related ($\beta = .970$) and statistically significant ($p < 0.001$). The introduction of the GI and GE variables in Step 2 explained an additional 5.5% of the variation in GDP per capita, and this change in R^2 was significant ($F = 44.681$, $p < 0.001$). It shows that controlling OP and TO improves the predictability of GDP per capita. The OP now shows a positive correlation, but remains statistically insignificant. However, TO ($\beta = .571$), GI ($\beta = .185$) and GE ($\beta = .343$) show a positive relationship to GDP per capita and become statistically significant ($p < 0.05$). Adding CPI and WGI to the regression model in Step 3 explained an additional 3.4% of the variation in GDP per capita,

Table 5. Summary of Hierarchical Regression Analysis for Variables predicting Satisfaction

Variable	Beta (β)	R	R^2	ΔR^2	F	F Change	95.0% Confidence Interval for B		Collinearity Statistics	
							Upper	Lower	Tolerance	VIF
Step 1		.937	.877	.877	53.684***	53,684***				
Oil Price	−.042						−.012	.010	.342	2.923
Trade Openness	.970***						.619	1.256	.342	2.923
Step 2		.965	.932	.055	44.581***	5.226**				
Oil Price	.169						−.005	.016	.263	3.797
Trade Openness	.571**						.171	.932	.158	6.346
General Index	.185**						.000	.000	.856	1.168
Government Expenditure	.343**						.074	.497	.377	2.649
Step 3		.983	.966	.034	52.305***	5.536**				
Oil Price	.152						−.005	.015	.170	5.876
Trade Openness	.676**						.325	.981	.130	7.716
General Index	.192**						.000	.000	.830	1.205
Government Expenditure	.093						−.142	.296	.216	4.638
Corruption Perceptions Index	.340**						.009	.047	.291	3.433
Worldwide Governance Indicators	−.155*						−2.917	.276	.427	2.342

*, **, *** indicates confidence at the 90%, 95%, and 99% level, respectively.

Table 6. Mediating effect of oil price on the relationship between trade openness and economic growth

Dependent Variable	Variables	Beta without mediator (Model 1)	Beta with mediator (Model 2)	Result
GDP per capita	Independent Variable			
	Trade Openness	.901***	.609***	Partial mediation
	Mediator			
	Oil Price		.368**	
R^2		.811	.862	
Adjusted R^2		.862	.853	
R^2 Change		.811	.051	
F Change		145.155***	12.065**	

*, **, *** indicates confidence at the 90%, 95%, and 99% level, respectively.

Table 7. Mediating effect of oil price on the relationship between government expenditure and economic growth

Dependent Variable	Variables	Beta without mediator (Model 1)	Beta with mediator (Model 2)	Result
GDP per capita	Independent Variable			
	Government Expenditure	.875***	.550***	Partial mediation
	Mediator			
	Oil Price		.470***	
R^2		.766	.881	
Adjusted R^2		.759	.874	
R^2 Change		.766	.115	
F Change		111.325***	32.117**	

*, **, *** indicates confidence at the 90%, 95%, and 99% level, respectively.

Table 8. Moderation effect of general index

Dependent Variable	Variables	Std. Beta (Model 1)	Std. Beta (Model 2)	Std. Beta (Model 3)
GDP per capita	Independent Variable:			
	Oil Price	.851***	.656***	.303
	Moderating Variable:			
	General Index		.325***	−.199
	Interaction Term:			
	Oil Price × General Index			.803*
R^2		.724	.792	.815
Adjusted R^2		.716	.779	.798
R^2 Change		.724	.068	.023
F Change		89.075***	10.767**	4.026*

*, **, *** indicates confidence at the 90%, 95%, and 99% level respectively

and this change in R^2 was also significant (F = 52.305, p < 0.001). In this model, the OP and GE become statistically insignificant even though they have a positive relationship. TO (β = .676), GI (β = .192) and CPI (β = .340) show a positive correlation and are also statistically significant (p < 0.05). WGI (β = −.155) shows a negative relationship to GDP per capita and becomes statistically significant (p < 0.10). The upper and lower confidence interval columns confirm the potential impact of mediation, discussed in the following section.

5.3. Impact of Mediation

We perform a series of regression analyzes to establish mediation following the guidelines proposed by Baron and Kenny (1986). We consider the OP as a mediator and look for the mediating effect of the OP (Tables 6 and 7) on the relationship between the outcome variable (GDP per capita) and predictors (TO and GE).

Baron and Kenny (1986) proposed the existence of perfect mediation in a situation where the independent variable has no effect when the mediator is controlled. On the other hand, partial mediation occurs when the influence of the independent variable is reduced in magnitude but is still significant when the mediator is controlled (Baron & Kenny, 1986). We find a partial mediation of OP on the relationship between GDP per capita with two selected predictor variables (TO and GE). In both cases, the inclusion of the mediator (OP) weakens the relationship between outcome variable (GDP per capita) and predictor variables (TO and GE). The beta coefficients of TO (from 0.901 to 0.609) and GE (from 0.875 to 0.550) were reduced after inclusion of the mediator (OP), however the relationship remains statistically significant both before and after inclusion of the mediator. This confirms the presence of a mediation effect (partial) of OP, which is also visible in the upper and lower bounds of confidence interval in Table 5.

5.4. Impact of Moderation

Sharma et al. (1981) proposed a three-step hierarchical regression process to test for moderation effects, which is followed in this study. In the first step, the dependent variable (GDP per capita) is regressed on the independent variable (OP), followed by the moderator variable (GE). Then we entered the interaction terms by multiplying the independent variable by the moderator variable. If *b(x)* and *b(x*z)* are significant and *b(z)* is not significant, then there would be pure moderation, but if *b(x), b(z)* and *b(x*z)* are significant, quasi moderation exists.

To test the hypothesis that GDP per capita depends on multiple factors, and in particular whether GI moderates the relationship between OP and GDP per capita, a hierarchical multiple regression analysis was performed. In the first step, we enter OP, which accounted for a significant variance in GDP per capita (R^2 = 0.724, F = 89.075, p < 0.001). In the second step, we enter the GI which was also accounted for a significant variance in GDP per capita (R^2 = 0.792, F = 62.715, p < 0.05). To avoid potentially problematic high multicollinearity with the interaction term, the variables were centered and an interaction term was created between OP and GI (Aiken & West, 1991). In the third step, the interaction term between OP and GI was added to the regression model, which accounted for a significant fraction of the variance of GDP per capita, ΔR^2 = 0.023, ΔF = 4.026, p < .10, b = .803, p < 0.10. It confirms the existence of a moderating effect of GI on the relationship between OP and GDP per capita, a hierarchical multiple regression analysis was performed (Table 8).

Based on the discussion above, the following table (Table 9) shows the status of all the hypotheses taken for testing. Out of six predictor variables, three show a positive relationship to the outcome variable, while the remaining three variables do not affect economic growth. All hypotheses regarding mediation and moderation effects are accepted.

6. Discussion

The results of the study deserve special attention as they raise some worrying issues that require political attention. A key observation is OP's failure to explain Saudi Arabia's economic growth. This is a clear departure from most previous studies (Burakov, 2017; Foudeh, 2017; Nyangarika et al., 2018)

Table 9. Summary of hypotheses testing

Hypotheses	Expected Sign	Decision
H1: There is a positive relationship between OP and economic growth.	+	Rejected
H2: There exist a moderating effect of general index on the relationship between GDP per capita and oil price.	+	Accepted
H3: There is a positive relationship between trade openness and economic growth.	+	Accepted
H3a: There exist mediating effect of oil price on the relationship between GDP per capita and trade openness	+	Accepted
H3b: There exist mediating effect of oil price on the relationship between GDP per capita and government expenditure	+	Accepted
H4: There is a positive relationship between general index and economic growth.	+	Accepted
H5: There is a positive relationship between government expenditure and economic growth.	+	Rejected
H6: There is a positive relationship between Corruption Perceptions Index and economic growth.	+	Accepted
H7: There is a positive relationship between WGI and economic growth.	+	Rejected

linking OP to economic growth. It supports the right political intervention through Vision 2030 to reduce dependence on the oil-based economy. At the same time, a positive correlation between TO and economic growth is found, which confirms most existing studies (Chang et al., 2009; Dollar & Kraay, 2004; Frankel & Romer, 1999; Freund & Bolaky, 2008). Thus, the result suggests the regulatory initiative to diversify exports, which is very important to maintain the growth target. The study also finds a positive relationship between the GI and economic growth, confirming the reform initiatives in stockholding pattern and various regulatory interventions taken after the market crashes of 2006 and 2008. The moderating effect of the GI on the relationship between OP and economic growth also confirms the need for additional importance of the stock market mechanism. We do not find a strong correlation between GE and economic growth like few other studies (Barth et al., 1990; Landau, 1983, 1986). It needs careful attention. If it is due to the promotion of private participation in the economic development process, it may deserve recognition. It may also be due to the loose connection between GE and growth parameters. The mediating effect of OP continues to confirm the importance of OP for economic growth through TO and GE. To mitigate the impact, it is advisable to expand the export basket and be prudent with GE. It is a concern for Saudi Arabia's economy when WGI does not reflect a strong relationship with economic growth. In a country governed by the Shariah principle, it is desirable to have a positive relationship between WGI and economic growth. This may be due to less integration into the traditional economic structure, and it seems to us that governance in Saudi Arabia is not market-driven before Vision 2030. Due to Vision 2030, the country's governance is growth-oriented, which is confirmed in this study by the positive relationship of two growth-related predictors (e.g. TO and GI) together with the moderating and mediating effect. Furthermore, we test a related hypothesis and find a positive relationship between the CPI and economic growth. It confirms that Saudi Arabia's economy is successfully keeping corruption under control by enforcing pro-growth governance in the economy.

7. Conclusion

The quality of governance plays an important role in maintaining a country's sustainable economic growth (Lahouij, 2017). Governance is a multifaceted concept and regulators are constantly trying to ensure good governance. The economy of Saudi Arabia largely depends on petroleum products; however, the country is in an economic transformation process. The country's Vision 2030 identifies areas for reform that will lead to economic growth and development. This study highlights the predictors of economic growth that can help policymakers make arrangements that need to be made to achieve their growth policy objectives, such as Vision 2030.

Like other studies, GDP per capita is used as a proxy to measure economic growth (Fayissa & Nsiah, 2013; Lahouij, 2017; Al Mamun et al., 2017; Shao, 2016; United Nations Development Program, 2010) in this study. Based on a literature review, six predictors, namely Oil price (Alkhateeb, 2021; Burakov, 2017; Fiti et al., 2016; Mahmood et al., 2020), trade openness (Chang et al., 2009; Dollar & Kraay, 2004; Frankel & Romer, 1999; Freund & Bolaky, 2008), general index (Alam & Hussein, 2019; Boubakari & Jin, 2010; Ho, 2019; Seven & Yetkiner, 2016), government expenditure (Ahsan et al., 1996; Holmes & Hutton, 1990; Ram, 1986; Singh & Sahni, 1984), corruption (Drury et al., 2006; Mo, 2001), and worldwide governance indicators (Absadykov, 2020; Das & Andriamananjara, 2006; Kurtz & Schrank, 2007; Neumayer, 2002) of economic growth have been identified. To identify governance parameters, the study utilized both market-enhanced and growth-enhanced dimensions. All data come from various secondary sources, and quantitative methods have been applied to identify the relationship between predictors and outcome variables.

The results of our study have some policy issues. The study confirms a positive association between three predictors (TO, GI and CPI) and the country's economic growth. The remaining three predictors (OP, GE and WGI) show no relation to economic growth. Two indirect predictors (OP and GI) mediate and moderate selected relationships, adding a new dimension to the results. The results support the initiatives taken as part of Vision 2030 to accelerate economic growth. There are also few concerns about parameters such as GE and WGI.

Based on the analysis and findings, the study recommends policy interventions in six dimensions considered in computing WGI. It will help the country to achieve a market-enhanced dimension of governance, which is very important in ensuring economic growth. The second recommendation is for the careful allocation of public resources so that government expenditure can enhance public interest and well-being and increase their income levels. Until the country manages to reduce its over-dependence on petroleum products, the economy must use the mediating effect of OP. It should also focus on strengthening the capital market by increasing market capitalization. These recommendations will help the economy to achieve Vision 2030.

The main limitation of the study is the adoption of a quantitative research method based on secondary data sources. The accuracy of the results depends on the accuracy of the data. Because there is insufficient data for a few predictors, we cannot increase the number of observations. A qualitative research approach can be used, focusing on a specific area that can lead to more specific results.

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Conflict of interest
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