



Evaluation of the Effect of Financial Development and Human Capital on Gross Domestic Product Growth

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Abstract

The present research sought to evaluate the impact of financial development and human capital on gross domestic product (GDP) growth. A descriptive and correlational study was conducted. Data collection was done using the World Bank and the International Monetary Fund data to analyze the relationship between variables. Post-event (semi-experimental) research design was applied. The current research pursued a library, analytical-causal study based on panel data analysis. The statistical population consisted of all oil-producing countries as a case study from 2006 to 2020. Ten oil-producing countries were selected as the statistical sample. The results revealed that human capital positively and significantly affect the GDP growth of oil-producing countries. Also, a significant correlation was observed between financial development and GDP growth of oil-producing countries.

Keywords: financial development, human capital, gross domestic product growth, oil-producing countries

Introduction

Human capital can make a country capable to learn and grasp complicated links and tasks so that to attain a comparative advantage in manufacturing complicated products. Human capital refers to knowledge, capabilities, capacities, experiences, and order transferred to individuals through education and training and enhanced the capability to generate economic value. Thus, improvement of human capital can enhance domestic production capacities. Countries with lower human capital will be restricted in improving

their national capacities even in a deficient cycle of low complexity and low production capacity. The human capital focuses to solve these problems through establishing the required skills in humans such as production resources and creation of fruitful jobs. Patrick believes that the relationship between the development of financial markets and economic growth is dependent on the countries' development degree. In the preliminary stages of development, financial markets' improvement, the growth of new financial tools, and financial structure changes result in economic growth.

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Following the economic development process, financial developments pursue the demand for it, and demanding novel financial instruments and services becomes a decisive factor (Shahbaz et al., 2017). Financial development means indeed the financial system or sector development, involving markets, institutions, and financial tools. The second side of the economic coin is the financial part, complementing the real economic sector. The desired performance of the social economic system is dependent on two real and financial sectors that are efficient, complementary, powerful, and under supervision. These two sectors' activity is the necessary and sufficient condition for a desirable economic system. Shortcomings in each of these sectors will negatively affect other sectors' performance. Thus, economic systems' stable and long-term equilibrium is gained when the two sectors operate in a balanced state and efficiently through their interconnections (Mehra & Naini, 2009).

Enhancement of the foreign exchange of countries through financial markets' development improves the national earnings, which positively affect the creation and increase of their production capacities. Therefore, the increase in production capacity increases the need for capital, augmenting investment in countries to some extent. Moreover, the so-called issues are the primary privileges of developing financial markets in developing countries, involving oil-producing countries, where incrementing economic growth has a crucial priority, and developing financial markets significantly contributes to it (Reiman et al., 2013).

Overall, financial development is a primary instrument for most countries to attain affluence and their economic growth targets. Since financial development improves financial markets, some governments persuade further development to foster financial development. So, financial development and its problems and challenges have attracted the attention of economists and researchers in recent years. Assuming the significance of financial development in a country's growth process and sustainable development, it may render vital advantages including the optimal resources' allocation, production factors' efficiency, reducing trade obstacles' costs, and access to inexpensive inputs. Hence, developing financial sectors may improve economic growth and employment. It may also increase real competitors in the internal market, and this can in turn motivate manufacturers to enhance efficiency and productivity. Thus, financial development is a primary economic target of oil-producing countries.

Accordingly, the current study set to analyze the association of financial development with the gross domestic product (GDP) growth of oil-producing countries. The main objective is to evaluate the impact of these variables on the GDP growth of the oil-producing countries from 2006 to 2020. Hence, the study variables include macroeconomic variables. The main inquiry of the study is "how do macroeconomic variables influence the GDP growth?" It is attempted to find out the mutual and obscure relationship between the financial development and GDP growth of the oil-producing countries in this period, which is assumed the unrevealed aspect of



the study, and an effort is made to achieve this goal.

Financial development and economic growth

The financial development concept attracted the attentions in the 1990s after the financial repression concept. After around two decades of scientific dispute, the literature on the financial development and economic growth association achieved relative maturity. It has been specified at the macro level that financial development affects economic growth positively and significantly. The influential channels of financial development on the authentic sector are nearly well-known. Moreover, economic research works have entered the micro economic scopes from the macro level. Equipping financial resources is known as the life blood of economic activities. (Mohammad Aliyari June 2022)

Financial systems may reduce transactional costs, improve resource allocation, and enhance economic growth through the following functions: achieving information about investment opportunities, monitoring investments, risk sharing, savings accumulation, and facilitating goods transactions and services. Studies show that financial development is a multi-aspect concept that consists of other dimensions and components like the financial sector freedom, regulations' quality and supervision of this sector, technological progressions, competition level, and existing institutional capacities in addition to the monetary dimension and banking. A country's financial structure involves different financial markets and products, and some restricted criteria

may not involve all the required aspects of financial development. According to the International Monetary Fund study, six different dimensions of financial development as a comprehensive concept are: 1) developing banking, 2) developing non-banking financial sector, 3) developing monetary sector and monetary policy, 4) regulations of banking and supervision, 5) financial sector openness, and 6) the institutional environment. These dimensions are briefly described below (Dadgar & Nazari, 2009).

Capital can mobilize the productive sector and, by increasing production, increase trade, improve people's living standards, and promote economic growth is investment growth and the mechanism of the effect of uncertainty on economic growth is through investment channel. (Ghazale Tajilro June 2022)

Quantitative indices are based on the money volume, facilities, traditional indices of financial development and deepening. These indices are an economy's representatives of savings and credit intermediaries and may rise in response to price marking improvement, mainly depicted via the establishment of positive real interest rates (Arkakoli et al., 2016).

The least developed countries must firstly modify their internal financial system to strengthen the impact of investment on economic growth. In spite of the fact that investment relies on domestic capital, its external consequence for the internal economy relies on the development level of financial markets (Shahidi & Yavari, 2014). More efficient financial systems decrease foreign financing barriers and pave the way

for expansion of investment and greater economic growth through facilitating the access conditions of manufacturing and industrial units to foreign capitals. Thus, financial systems are regarded as intermediary channels between savers and investors; hence, there exists a direct link between the financial system efficiency and the real sector performance of the economy. Although the influence of investment in developing countries manifests entrepreneurship's role in economic progression, the significant point is the financial markets' role. Essentially, absorbing and improving investment may develop financial markets. The financial markets' development can also be assumed a symptom of economic stability disregarding of being an investment facilitator (Pourshahabi & Esfandiari, 2017).

Financial development can also influence economic growth though this influence relies on the financial market development of the host country. This relationship can be assumed as a combined impact of investment and financial market development on the efficiency of investment or the production factors' total productivity. A developed financial system may efficiently allocate resources and improve the attraction capacity of a country. Accordingly, financial markets have a primary role in equipping and guiding the existing economic funds towards manufacturing and industrial units and, thus, economic growth (Pourshahabi & Esfandiari, 2017). Developing financial markets is more precedent as compared with economic growth, i.e. the capital structure brings about economic growth through guiding savers'

limited resources to investment (Arkakoli et al., 2016).

Many experts believe that the significance of developing countries' financial markets is because efficient financial markets have a crucial role in equipping financial resources for investment, encouragement of foreign capital entry and equipping, and optimization of the resource allocation mechanisms (Okafoor et al., 2016). The expansion process of the financial markets of countries relies on their economic levels, financial foundations' development, institutions' structure, legal system, management, etc. there exists no certain direction in this regard (Mehrara & Nayini, 2009).

In recent decades, experts' economic perspectives with respect to the association of financial markets and economic growth have experienced many ebbs and flows. It was previously believed that economic growth occurs through financial deepening. Later, the real sector's priority over the financial sector was addressed. In some cases, the lack of these two variables was used to be confirmed. In recent years, it is declared that this relationship differs depending on the countries' financial and economic structure and development level. To overview these perspectives, in the development economics literature, two different traditional perspectives exist regarding the significance of financial markets' effectiveness on countries' economic growth. One perspective asserts that financial markets primarily affect economic development and growth. Another perspective perceives the financial markets as the servants of the industry, assuming financial intermediaries the mere channels to



guide household savings to investment practices. According to the endogenous economic growth literature, financial markets are active and dominant agents in industrial activities. In this framework, developing financial markets can influence the real economic sector via efficient capital allocation, efficiently converting savings to investment, and reducing the interest rates. The question is that whether financial markets prepare the condition for improved economic growth or whether economic activities' increment results in demand for financial intermediaries and the financial markets' growth. Overall, financial markets are recommended by economists to reach economic development (Abongan, et al., 2014).

In the investment and economic growth literature, developing financial markets is a macroeconomic concept, in which markets and investment institutions' development are the necessary condition for the countries' economic growth. Developing countries are basically in a stagnation status, where investment issues are kept in a superficial and shallow state, hence, limiting their economic growth (Husseini et al., 2020).

Human capital and economic growth

Human capital has a notable role in explicating the economic growth of advanced and industrialized countries, and a crucial part of their economic growth is achieved by human capital development. Human capital actually complements the physical capital so that it can be used more appropriately. The developed countries' experiences and different studies on countries' economic

growth over years or among countries demonstrate that the evaluation of the economic growth rate using conventional factors such as capital and labor force does not provide precise outcomes, so human capital must enter the growth model as a the main variable. Accordingly, the impact of human capital on the GDP growth of oil-producing countries from 2006 to 2020 was evaluated (Mahdi Tagavi, Hussein Mohammadi).

Human capital or labor force quality or institutionalized knowledge improves countries' production and economic growth. Provided that there exist all physical factors for manufacturing such as capital, raw materials, etc., human workforce is the only factor that can alter them and manufacture goods. Moreover, professional and experienced human force can improve products' quality and can also be a planner and guide. The primary index for indicating the activity level and economic growth of societies is the labor force employment and productivity. Labor force does not turn to be more productive except via directing links and carrying out more complicated tasks, i.e. training and experience. Thus, the present study set to pay specific attention to human capital' impact on oil-producing countries' economic growth (Mohad Javad Salehi).

Schultz (1961) as the most pronounced scholar of human capital theory believed that the role of labor quality improvement, obtained by investment in human capital, has been disregarded as a growth determinant factor in traditional analyses influential on economic growth. Accordingly, some economists set to estimate the excess production by higher 1 education levels

(transferring practical experience). They argued that augmenting training levels (transferring practical experience) improves material production via investment in training since formal and informal training outcomes are covert in people's additional skills and potential capacities in the labor market, comprising the human capital in production. Hence, trained people may improve the production capacity of the economy and may promote economic growth (Sadeghi & Emadzadeh, 2004)

To explain the economic growth of developed industrial countries, human capital has a crucial role, and a primary share of their economic growth is because of the human capital development. Human capital is in fact the complement to physical capital, facilitating better exploitation of physical capitals (Ahmadian Yazdi & Mahdavian Adeli, 2014).

Research background

Akpan et al. (2017) assessed the Granger Causality of financial development effect on economic growth in Nigeria during 1998 to 2015, indicating a bilateral correlation between financial development and economic growth, i.e. financial development affects economic growth, and economic growth affects financial development. There exists also a long-term correlation between financial development and economic growth. Angelos, et al. (2016) evaluated the role of financial development in the association of capital supply and capital structure of South American companies during 1970 to 2007, indicating the positive impact of financial development on capital structure. Durusu, et

al. (2016) assessed financial development and economic growth, and asserted based on some theories and evidence that their study would contribute to better perception of the role of financial development on theoretical and empirical economic growth. In the theoretical part, they applied the Solo growth model regarding financial markets, indicating that debt from credit markets and stock owners'share from stock markets have a long-term correlation with GDP per capita. They assessed the long-run correlation for a panel of 40 countries from 1989 to 2011.

Okafor, et al. (2015) assessed the impact of financial development on economic growth and investment in Nigeria. They applied the vector autoregressive (VAR) model and found that financial development positively and significantly affects economic growth. Moreover, they evaluated the bilateral correlation between financial development and economic growth applying Granger causality analysis. Auusei (2014) inquired whether economic growth promotes financial development. He inspected whether economic growth may promote financial development in 24 African countries employing time-series data and the GMM method from 1981 to 2010, revealing that economic growth enhances financial development. Furthermore, it was revealed that human capital and inflation are positively and negatively correlated with financial development, respectively.

Samargandi et al. (2013) studied financial development and economic growth in the oil-rich economy of Saudi Arabia. They assessed the impact of financial development on economic growth in an oil-rich economy



employing the autoregressive distributed lag (ARDL) approach from 1968 to 2010, manifesting that financial development positively affects the non-oil sector growth of Saudi Arabia; in contrast, it has a negative and insignificant impact on the total GDP growth.

Pourshahabi and Esfandiari (2016) evaluated the correlation between financial development, investment and economic growth of Asian countries from 1996 to 2013. They regarded financial development as a main variable in investment and economic growth, demonstrating that although investment positively and significantly affects financial development and economic growth, financial development is considered an inhibitor for their economic growth because of their deficient institutions and inefficient credit allocation.

Motmeni and Ariani (2013) studied the correlation between financial development and investment and economic growth in West Asian and North African countries. Accordingly, the impact of financial markets on the effectiveness of investment on economic growth of Jordan, Algeria, United Arab Emirates, Islamic Republic of Iran, Bahrain, Tunisia, Oman, Morocco, Egypt, Yemen, Turkey, Libya, Qatar, Malta, and Saudi Arabia from 2001 to 2010 was assessed using dynamic panel data models and Generalized Momentum Estimation (GMM). The results determined that in West Asian and North African countries, investment has a positive and significant impact on economic growth through developing financial markets.

Methods and Materials

A descriptive-correlational study was conducted to analyze the correlation between variables utilizing the World Bank and International Monetary Fund website data. Moreover, a post-event (semi-experimental) research design was employed, i.e. based on the analysis of previous and historical data. Also, the current research pursued a library, analytical-causal study based on panel data analysis.

The following model is based on as a research model based on theoretical foundations and empirical studies, such as Sadeghi et al. (2020).

$$GDP_{it} = \beta_0 + \beta_2 HUM_{it} + \beta_3 FIN_{it} + \epsilon_{it} \quad (1)$$

GDP: gross domestic product growth obtained from the World Bank data

HUM: human capital obtained from the World Bank data

FIN: financial development obtained from the World Bank data

The statistical population consisted of all oil-producing countries as a case study from 2006 to 2020. Ten oil-producing countries were selected as the statistical sample.

Firstly, the research model and areas are presented, and then statistical methods are described to confirm the data reliability applying unit root tests; in case, the data lack reliability, differentiation is used. Levin and Lin test is employed to indicate data durability.

Results

Table 1 provides the descriptive statistics: the number of observations, minimum, maximum, mean value, standard deviation, and variance

Table 1: Descriptive statistics

Standard deviation	Variance	Mean	Maximum	Minimum	No. of observations	Title
52.74598	2782.138	73.5867	215.90	11.90	150	Financial development
.09777	.010	.6099	.83	.43	150	Human Capital
1.32761	1.763	12.7894	15.86	10.52	150	GDP growth

Table 1 shows that the number of observations was 150, and the minimum, maximum, average, standard deviation and variance values were obtained by SPSS. This estimation show that the financial development variable had the maximum standard deviation and variance among the descriptive variables. Thus, financial

development among oil-producing countries was highly different with abundant dispersion. However, the human capital variable had the minimum standard deviation and variance among the descriptive variables; hence, the oil-producing countries are identical in terms of human capital.

Table 2: Skewness and kurtosis of the data

Skewness		Kurtosis		No. of observations	Title
Statistic	Std. Error	Statistic	Std. Error		
1.162	.198	.251	.394	150	Financial development
.678	.198	-.496	.394	150	Human Capital
.713	.198	.601	.394	150	GDP growth

Table 2 shows that the skewness and kurtosis of the financial development were 1.162 and 0.251, respectively, which are in the -2 to 2

range. Other variables had skewness and kurtosis in the -2 to 2 range, respectively, indicating the normality of the distribution.

Table 3: The results of the unit root test of research variables

Test result	Significance level	Test statistics	Variable
Durability	0.0005	-3.29	Financial development
Durability	0.0003	-3.41	Human Capital
Durability	0.0087	-2.38	GDP growth

According to the values estimated with the critical value of Table 3, all variables were durable. Thus, the Levin-Lin-Chu test shows

that in panel data, using the unit root test for variables' stationarity trend before estimation prevents spurious regression; also, using the unit root test for combining data is more



potent compared to employing the unit root test for each cross-section separately.

Table 4: F-Limer test results

Test result	Significance level	Test statistics	Title
Panel data	0.0000	376.68	F-Limer test

Table 4 shows that the F-Limer test hypothesis at an error level of less than 1% rejects blended data, indicating model fitting through the panel data method. So, the null-hypothesis, i.e. blended research model is rejected, and the model is a panel data model.

After indicating that a panel data model, fixed or random effects in the research model should be approved. So, Hausman test can prove whether the effects are fixed or random.

Table 5: Hausman test results

Test result	Significance level	Test statistics	Title
Fixed effects	0.0000	13.26	Hausman test

Table 5 shows that the null-hypothesis of the Hausman test, i.e. the effects are random in the panel model, is rejected at the error level of less than 1%, and the inverse hypothesis, i.e. the existence of fixed effects in the research model, is confirmed. So, the

research model owns fixed effects which do not undergo changes over time. To prove the presence or absence of cross-sectional dependence between residuals, cross-sectional dependence test of boys can be applied.

Table 6: Cross-sectional dependence and variance heterogeneity test results

Test result	Significance level	Test statistics	Title
Variance heterogeneity	0.0000	165.26	Breusch–Pagan test
Dependence between residuals	0.0000	12.67	Boys independence test

Table 6 shows that that the null-hypothesis of Breusch–Pagan test, i.e. the homogeneity of variance, is rejected, and the research model owns variance heterogeneity. Also, the null-hypothesis of the boys' independence test, i.e. the lack of cross-sectional dependence between the residuals, is rejected, and there is

cross-sectional dependence among the research residuals.

According to the results and heterogeneity variance and cross-sectional dependence, Feasible Generalized Least Squares (GLS) method may estimate the model coefficients.

Table 7: The estimation results of the research model

Test result	Significance level	t test statistics	Coefficients	Variable
Significant	0.0000	424.87	12.43	y-intercept
Significant	0.0000	7.73	0.001	Financial development
Significant	0.0000	6.55	0.28	Human capital

Table 7 shows that financial development and human capital significantly affect the GDP growth in oil-producing countries at 5% probability level. Assuming the estimations, the final research model is estimated as below:

$$GDPR_{it} = 12.43 + 0.28 * HUM_{it} + 0.001 * FIN_{it} + \varepsilon_{it} \quad (2)$$

Model 2 estimates show that with one-unit increase of financial development, the GDP increased by 0.001 units. This estimate reveals that by augmenting the ratio of private sector's internal credits to GDP, financial markets in oil-producing countries develop and positively affects the GDP growth. So, financial development and GDP growth are positively and significantly correlated, confirming the first hypothesis that financial development significantly affects GDP growth in oil-producing countries.

The estimates show that the GDP increases by about 0.28 units with 1 unit rise in human capital. Thus, increasing human capital in oil-producing countries promotes their production and employment, so with increase in human capital, economic growth will possibly prosper. Thus, human capital and GDP growth are positively and significantly correlated.

Conclusion

The present study set to evaluate the effect of financial development and human capital on the GDP growth of oil-producing countries of the United Arab Emirates, Iran, Kuwait, Saudi Arabia, Russia, Canada, Mexico, America, Argentina, and Brazil during 2006 to 2020 using the panel data method.

The results manifested that human capital positively and significantly affects the GDP growth of oil-producing countries because a secure space is established for manufacturing and employment with improving human capital, which will in turn promote the GDP growth. Thus, the national income also increases with improving investment in manpower and attracting specialists to manufacture, which will in turn enhance the GDP growth. Consequently, increasing human capital enhances the economic growth of oil-producing countries, confirming the third hypothesis. The results are in line with the studies of Edossi (2014) and Fazeli and Khodaparast (2017).

A significant relationship was observed between financial development and the GDP growth of oil-producing countries, demonstrating that financial markets' development increases investment and access to financial resources through increasing the savings and emphasizing the increase of the level of financial capital accumulation.



Moreover, decreasing the informing costs, facilitation of exchanges, and precise assessment of costs may improve the economic growth. Manufacture and national income also improve through developing the financial markets. Since these countries' economy is one-dimensional and single-product, manufacturing oil products can flourish their financial markets to increase their economic growth, which is due to the oil revenues in dollars, which is a type of speculative income affected by the promotion of the financial markets. Therefore, financial development and GDP growth in these countries are positively and significantly correlated. The results are in line with the studies of Akpan et al. (2017) and Okafor et al. (2016).

The lack of required statistics and data about other oil-producing countries caused the model estimation done applying the data of few oil-producing countries; during 2006-2020, there exist no adequate data about other oil-producing countries.

Assuming the results, proper and synergistic policies must be adopted, and the essential incentives must be employed so that to improve the share of knowledge-based and complicated commodities in the total export. Secondly, an appropriate platform may contribute to persuasion of the process of transforming theoretical and scientific knowledge into complicated, innovative, and knowledge-based goods. Hence, economic complexity indices may emerge. Identification of the relative and absolute privileges of the country in manufacturing knowledge-based products can result in further effective steps in the national, regional, and global fields. The study of

development trend of advanced countries and taking their various experiences as role models can provide practical solutions to enhance the link between universities and industry to facilitate manufacturing knowledge-based commodities. It is recommended to raise the investment level in the manpower sector to further attract specialists and maintain manufacture for investments in production and diversification. Moreover, monetary and financial policies should be assigned according to product diversification in oil-producing countries' economy. Essential infrastructures must be created to utilize the economies of production scale for the manufacturers of oil-producing countries and supporting investments in the private sector regarding manufacture and enhancing governments' targeted investments to develop financial markets. The required substrates must be provided to increase productivity of financial markets for shareholders, including provision of facilities and market incentives to develop financial markets. It is recommended to develop manpower to increase manufacturing diverse products. Manpower must be developed through formulating policies and requisites to detect different dimensions of diversification and its development techniques.

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