

## CORRELATION BETWEEN HUMAN DEVELOPMENT INDEX AND ECONOMIC GROWTH OF MAJOR OIL AND GAS PRODUCERS

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### ABSTRACT

This paper examines the correlation between the Human Development Index (HDI) and the economic growth of the top oil and gas-producing countries. The 14 largest producers selected for analysis are the USA, Russia, Saudi Arabia, Canada, Iraq, China, United Arab Emirates, Brazil, Kuwait, Iran, Qatar, Australia, Norway, and Algeria. These countries include both developed and developing countries. It is also important to examine the issues mentioned from this perspective. The Pearson correlation coefficient is used for the analysis, and the relationship between economic growth and HDI between 1980 and 2020 is examined. The selected data analysed is almost complete except for a few missing values, for example, in the case of Russia, Saudi Arabia, Canada and Iraq. However, even this fact may slightly distort the analysis. The results show a correlation for all the top producers examined. The highest correlation, very strongly positive, was observed in the case of the USA. Very strong positive correlations were also found for China, Canada, Australia, Russia, Norway, and Algeria. The lowest correlation values were recorded for Iraq, Kuwait, and the United Arab Emirates. The analysis can be used as a basis for further analysis.

**Keywords:** Economic growth; Gas; Gross Domestic Product (GDP); Human Development Index (HDI); Oil; Pearson correlation coefficient.

### 1 INTRODUCTION

Energy commodities such as oil and gas are and will continue to be highly watched and debated topics in the future. They bring a host of positive aspects to society, the problem being that the largest oil and gas producers are often developing and developed countries. Another important aspect is the non-renewability of these resources and, therefore, their potential depletion. Both oil and natural gas are resource-constrained commodities. This fact affects global indicators in both a positive and a negative sense. Salari et al. [1] observed a threshold effect just between HDI and its relation to the financial development of oil. This shows that analysis, monitoring of developments, and estimates in the oil and gas sector will be needed in the future.

The relationship between economic growth and the Human Development Index has also been discussed by Mukherjee and Chakraborty [2]. The Human Development Index aims to expand freedoms in such a way that all people can live according to the life choices they have. They include the freedom of well-being, represented by functionality and capabilities, and freedom of mandate, represented by expression and freedom of anatomy. The Human Development Index (HDI) was introduced in 1990 and has been an important element in attempts to expand the measures of progress since then. It is published annually and serves several functions for decision-makers, university staff, or activists. It has been an ongoing activity as well as an element of trust for those striving for humane and inclusive societies. It is achieved by evaluating past trends and assessing the current situation [2].

The aim of this paper is to establish a correlation between the Human Development Index (HDI) and economic growth for 14 selected states. The subject of the analysis is the fourteen largest oil and gas producers in the world.

The method used to examine the relationship between economic growth and HDI between 1980 and 2020 is Pearson correlation coefficient. A correlation method is an important tool for examining the relationship, as proved by Roberts et al. [3], who compiled correlations between energy cost share, human and economic development for selected countries of Australia, Europe, North America, and BRICS countries.

The paper is further divided into a Methodology and Data section, followed by Results. The last section is the Conclusion.

## 2 METHODOLOGY AND DATA

In this study, the correlation is measured directly using the Pearson correlation coefficient to examine the relationship between GDP per capita and HDI.

The research focuses on the top 10 oil and gas producers. They coincide in some cases, as oil and natural gas are sometimes produced in the same place. For this reason, a sample of 14 countries was selected, as some calculations would be duplicated if all of the top 20 producers were surveyed. For clarification, the ranking of the top producers may vary slightly by the server; the ranking presented here is based on World Population Review [4,5].

The research focused on annual data from 1980 to 2020, representing a long-term period. Data were obtained from the World Bank [6] and the Global Economy [7] (presented in Annex 1). Microsoft Excel was used to calculate the analysis, directly with Pearson correlation coefficient.

### 2.1 Correlation

Correlation is a statistical term describing the extent to which two variables move in coordination with each other. It also means association, the degree to which two variables are related. It is calculated as the correlation coefficient that takes values in the range  $\langle -1; 1 \rangle$ . There are three types of correlation: positive, negative, and zero correlation.

Positive correlation: the variables move in the same direction. When one variable increases, the other variable also increases. A perfect positive correlation occurs when the result of the correlation takes the value of exactly 1.

Zero correlation: the variables do not correlate with each other. The result of the correlation is zero.

Negative correlation: the variables move in opposite directions, and when one variable increases, the other decreases. A perfect negative correlation takes the value -1.

To calculate the correlation, a correlation coefficient is used to indicate the strength of the relationship between two variables. This relationship can be found by the formula:

$$\frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum(x_i - \bar{x})^2 \sum(y_i - \bar{y})^2}} \quad (1)$$

where:

- $r_{xy}$  – the correlation coefficient of the linear relationship between the variables  $x$  and  $y$ ,
- $x_i$  – values of variable  $x$  in the sample file,
- $\bar{x}$  – the average of the values of the variable  $x$ ,
- $y_i$  – values of variable  $y$  in the sample file,
- $\bar{y}$  – the average of the values of the variable  $y$  [8,9,10,11,12].

## 2.2 Pearson correlation coefficient

It is a type of correlation coefficient that expresses the relationship between two variables. Variables are measured on the same ratio or interval equation. The coefficient of interest is a measure of the association between two continuous variables.

To find the Pearson coefficient, the two variables need to be placed on a scatter plot where the variables are labelled X and Y. The existence of linearity is required to calculate the coefficient. A scatter plot that shows no resemblance to a linear relationship will not be usable. The most similar scatter plot to a straight line expresses the strength of the association. The more similar it is to a straight line, the bigger the association's strength. The Pearson correlation coefficient is numerically plotted in the same way as the correlation coefficient used in linear regression in the range  $\langle -1;1 \rangle$ .

A value of +1 expresses a perfect positive relationship between two or more variables. A positive correlation represents the movement of both variables in the same direction.

A value of -1 expresses a perfect negative relationship. These are negative correlations and represent that as one variable increases, the other decreases. They are, therefore, inversely related.

Value 0 – there is no correlation.

The Pearson correlation coefficient has certain advantages, for example, for an investor requiring portfolio diversification. This may involve calculating a scatter plot of historical returns between pairs of assets (stock-bond, bond-property, stock-commodity). These relationships will then assist the investor in constructing a portfolio based on risk and return parameters. The coefficient measures correlation but not causation. Thus, one variable caused the outcome of the other variable [9,10,12,13].

**Table 1.** Range and degree of correlation coefficients [14]

Range of Correlation Coefficients	Degree of Correlation
0,80–1,00	very strong positive
0,60–0,79	strong positive
0,40–0,59	moderate positive
0,20–0,39	weak positive
0,00–0,19	very weak positive
(-0,20)–(-0,39)	weak negative
(-0,40)–(-0,59)	moderate negative
(-0,60)–(-0,79)	strong negative
(-0,80)–(-1,00)	very strong negative

Pearson correlation coefficient operates in Microsoft Excel as a syntax function with the following arguments:

- Matrix 1: A set of independent values and a mandatory argument.
- Matrix 2: A set of dependent values and a mandatory argument.

Therefore, in the case of the analysis of this article, it will be the following matrix:

- Matrix 1: HDI values in the period under study.
- Matrix 2: GDP values in the period under study.

Pearson correlation coefficient is expressed as follows: PEARSON (HDI; GDP).

This formula is used in a similar way for all the studied countries [15].

## 2.3 Human development index

The Human Development Index (HDI) has been developed and compiled by the United Nations since 1990. It is a statistic that measures the level of social and economic development of different countries. It includes 4 areas of interest: expected years of schooling, average years of schooling, gross national income per capita, and life expectancy at birth. The HDI is a tool used to track changes in development levels over time and to compare the level of development of different countries.

The index is a measurement of basic levels of human development. A country's final HDI is the average of the examined indices of aspects of life: long and healthy life, knowledge and understanding, and acceptable standard of living. All components are normalized on a scale between 0 and 1. The geometric mean of the three components is then calculated.

The health aspect is measured through the life expectancy calculated at the time of birth in each country. The component is equal to 0 if the life expectancy is 20 years. The component is equal to 1 if the life expectancy is 85.

Education is measured using two levels, namely the average number of years of schooling of the population of a country and the expected number of years of schooling of a child at the average age. The values are normalized separately so that both 15 years of average schooling and 18 years of expected schooling are equal to 1, and the simple average of the two values is calculated.

The economic metric used to express the standard of living is Gross National Income (GNI) per capita. It is based on purchasing power parity. The standard of living is equal to 1 if the GNI per capita is USD 75 000. The standard of living is equal to 0 if the GNI per capita is USD 100.

Finally, the HDI for each country is calculated as the geometric mean of the three components using the square root of the product of the normalized component scores [16–18].

## 2.4 Gross Domestic product

Gross Domestic Product (GDP) represents the total market or monetary value of all finished goods and services produced within a country and over a period of time. It is used as a comprehensive indicator of a country's economic health. GDP is calculated annually, but there are exceptions where it is also compiled quarterly [19–21].

## 2.5 Gross Domestic product (GDP) per Capita

Gross domestic product per capita is the most widely used global measure of the income distribution. GDP is the total monetary value of all final goods and services produced in a country in a given year. GDP per capita is the ratio of a country's GDP to that country's population. GDP per capita varies markedly globally.

GDP is not a perfect indicator of the quality of a country, as it does not include activity that does not take place in markets. Many factors contribute to a country's GDP but do not affect the quality of life of its people. Examples include the damage caused by pollution. They are not captured in GDP if no one pays for them. The counterpart can be useful work or spending time with family. Both factors are not included in GDP [22].

For the analysis conducted in this paper, the explained variable is GDP per capita, and the explanatory variable is HDI.

Based on the theoretical and empirical literature, the hypothesis was established:

- H1: There is an expected positive correlation between GDP and HDI. Therefore, the coefficient should have positive values.

Hypothesis H1 will be tested for all the countries under study.

### 3 RESULTS

This section presents the results of the Pearson correlation coefficient and the dependence plot of the development of the explained variable (GDP) and the explanatory variable (HDI). The results were created in Microsoft Excel. They show a high correlation between the explanatory and explained variables for all the top oil and gas producers studied. The studied countries include the USA, Russia, Saudi Arabia, Canada, Iraq, China, United Arab Emirates, Brazil, Kuwait, Iran, Qatar, Australia, Norway, and Algeria. The study was based on a sample of the top 10 producers of both commodities between 1980–2020. It is due to the fact that oil and natural gas are produced simultaneously. For this reason, the total number of examined states is reduced by this fact, thus bringing the total research for this paper to 14 states.

#### 3.1 Pearson correlation coefficient

Table 2 shows the results of the correlation between GDP and HDI for all studied countries.

*Table 2. Results of correlation between GDP and HDI for all studied countries*

<b>Correlation of GDP and HDI between 1980 and 2020</b>	
<b>USA</b>	0,9671
<b>Russia</b>	0,8724
<b>Saudi Arabia</b>	0,7494
<b>Canada</b>	0,8944
<b>Iraq</b>	0,5659
<b>China</b>	0,8979
<b>United Arab Emirates</b>	0,5357
<b>Brazil</b>	0,7801
<b>Kuwait</b>	0,5549
<b>Iran</b>	0,7145
<b>Qatar</b>	0,7887
<b>Australia</b>	0,8866
<b>Norway</b>	0,8170
<b>Algeria</b>	0,8095

##### 1. USA

According to Table 2, the correlation between HDI and GDP per capita in the US is 0.9671. This means that there is a very strong positive correlation. The effect of HDI on GDP per capita is very strong.

##### 2. Russia

Table 2 shows that the correlation between HDI and GDP per capita in Russia is 0.8274. This is a very strong positive correlation, and the influence of this factor is very strong.

##### 3. Saudi Arabia

Based on the results shown in Table 2, the correlation between HDI and GDP per capita of Saudi Arabia is 0, 7494. This means that the correlation is quite positive.

##### 4. Canada

According to Table 2 above, the correlation between HDI and GDP per capita in Canada is 0.8944. This means that the correlation is very strong and positive.

##### 5. Iraq

Table 2 shows the results of the correlation between HDI and GDP per capita in Iraq. The results take the value of 0.5659. It means that the correlation is moderately positive.

### 6. China

Table 2 shows that the correlation between HDI and GDP per capita of China is 0.8979. The influence of this factor is very strongly positive.

### 7. United Arab Emirates

Based on Table 2, the correlation between HDI and GDP per capita in the United Arab Emirates is 0.5357. This is a moderate positive correlation.

### 8. Brazil

Table 2 shows the results of the correlation between HDI and GDP per capita in Brazil. The results take the value of 0.7801. The correlation between HDI and GDP in Brazil is strongly positive.

### 9. Kuwait

Table 2 shows that the correlation between HDI and GDP per capita in Kuwait is 0.5549. The correlation is slightly positive.

### 10. Iran

Based on Table 2 above, the correlation between HDI and GDP per capita in Iran is 0.7145. This means that the correlation is strongly positive.

### 11. Qatar

Table 2 shows the results of the correlation between HDI and GDP per capita in Qatar. The results take a value of 0.7887. It means that the correlation is quite positive.

### 12. Australia

Based on Table 2 above, the correlation between HDI and GDP per capita in Australia is 0.8866. The effect of HDI on GDP per capita is very strong.

### 13. Norway

Table 2 shows that the correlation between HDI and GDP per capita in Norway is 0.8170. The correlation is very strongly positive.

### 14. Algeria

Table 2 shows that the correlation between HDI and GDP per capita in Algeria is 0.8095. The correlation between HDI and GDP in Algeria is very strongly positive.

## 3.2 Hypothesis verification

H1 was confirmed for all countries examined. Therefore, a positive correlation was found between the explained variable (GDP) and the explanatory variable (HDI). However, the degree of correlation varies from country to country. Table 3 shows the degree of correlation for each country.

*Table 3. Degree of correlation*

State	Degree of Correlation
USA	very strongly positive
Russia	very strongly positive
Saudi Arabia	strongly positive
Canada	very strongly positive
Iraq	moderately positive
China	very strongly positive
United Arab Emirates	moderately positive
Brazil	strongly positive
Kuwait	moderately positive
Iran	strongly positive
Qatar	strongly positive

<b>Australia</b>	very strongly positive
<b>Norway</b>	very strongly positive
<b>Algeria</b>	very strongly positive

## 4 CONCLUSION

The study examines the correlation between HDI and GDP per capita of the largest oil and gas producers. Fourteen producers were selected for analysis, and some of the selected countries belong to the group of top producers of both oil and natural gas. The following top producers were selected: the United States, Russia, Saudi Arabia, Canada, Iraq, China, United Arab Emirates, Brazil, Kuwait, Iran, Qatar, Australia, Norway, and Algeria. The research aims to find out if there is a correlation between HDI and GDP per capita of the selected countries, and if there is a correlation, how strong it is. The study also aims to analyze the current state of the correlation and use the results of this correlation for further analysis.

Pearson correlation coefficient has been used. The analysis was done on the data over the period 1980–2020. The used data are almost complete except for a few missing values, namely in the case of Canada, Saudi Arabia, Russia, and Iraq, but even this may slightly bias the analysis. The results show a correlation between all the variables examined. The highest correlation was found in the case of the USA, with a very strong positive correlation. Furthermore, a very strong and positive correlation was also found for Canada, Australia, China, Norway, Russia, and Algeria. The lowest Pearson correlation coefficient values were recorded for Kuwait, Iraq, and the United Arab Emirates.

The study by Suprpto et al. [23] examined the relationship between economic growth and the index of human development in West Java. The results of the study show the existence of a relationship and the effect of HDI on economic growth. The results are consistent with the study in this paper. Furthermore, the study by Trandafir [24] examined the bilateral relationship between the Human Development Index and Economic Growth in Romania. The results show the existence of a bidirectional relationship between HDI and economic growth.

The research question of whether there is a relationship between economic growth and human development was addressed by Mukherjee and Chakraborty [2]. They focused on 28 major Indian states. The results of their analysis show that per capita income does not translate into human well-being. The results are contrary to the results obtained in this analysis, as the results showed a strong correlation of all the studied variables. Research results brought by Ma et al. [25] made it possible to demonstrate the existence of a moderately positive impact of environmental technologies and innovations on accelerating innovative development, improving the quality of life of the population and GDP per capita growth. The study by Hung [26] also investigated the relationship between GDP and HDI in China during the 1990–2019 period. Wavelet correlation, wavelet coherence, and scale-by-scale Granger causality test were used. The main results show that GDP positively controls HDI at low and medium frequencies. Furthermore, there is also a bidirectional relationship between GDP and HDI in different time and frequency domains. Thus, the positive dependence of the investigated relationship was found. The results are consistent with the results in the study of this paper.

The topic of oil and gas exploration has always been highly debated but has become even more important in recent years. Not only for this reason but there will also be a need for further research in the future on the two analyzed energy resources.

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## ANNEX 1 – Data used for the analysis

Year	USA	GDP per capita (current US\$)	Human Development Index (0–1)	Russia	GDP per capita (current US\$)	Human Development Index (0–1)
1980		12574,79	0,825			
1981		13976,11				
1982		14433,79				
1983		15543,89				
1984		17121,22				
1985		18236,83				
1986		19071,23				
1987		20038,94				
1988		21417,01			3777,24	
1989		22857,15			3428,76	
1990		23888,6	0,86		3492,71	0,734
1991		24342,26	0,862		3490,45	0,729
1992		25418,99			3098,8	0,719
1993		26387,29	0,872		2930,67	0,711
1994		27694,85	0,875		2662,1	0,702
1995		28690,88	0,878		2665,78	0,701
1996		29967,71	0,879		2643,93	0,702
1997		31459,14			2737,57	0,704
1998		32853,68	0,884		1834,86	0,703
1999		34515,39	0,885		1330,76	0,71
2000		36329,96	0,881		1771,59	0,721
2001		37133,63	0,884		2100,35	0,727
2002		37997,76	0,886		2377,53	0,733
2003		39490,27	0,889		2975,13	0,74
2004		41724,63	0,892		4102,36	0,746
2005		44123,41	0,896		5323,46	0,752
2006		46302	0,899		6920,19	0,759
2007		48050,22	0,902		9101,25	0,767
2008		48570,05	0,907		11635,27	0,774
2009		47194,94	0,908		8562,81	0,771
2010		48650,64	0,911		10675	0,78
2011		50065,96	0,914		14311,08	0,789
2012		51784,42	0,916		15420,88	0,797
2013		53291,13	0,914		15974,64	0,803
2014		55123,85	0,915		14095,65	0,807
2015		56762,73	0,917		9313,01	0,813
2016		57866,75	0,919		8704,9	0,817
2017		59914,78	0,919		10720,33	0,822
2018		62805,25	0,92		11287,36	0,824
2019		65094,8	0,92		11536,25	0,824
2020		63027,68	0,926		10161,98	0,824

Year	Saudi Arabia	GDP per capita (current US\$)	Human Development Index (0–1)	Canada	GDP per capita (current US\$)	Human Development Index (0–1)
1980		16977,99	0,583		11170,56	0,809
1981		17871,99			12337,47	
1982		13944,95			12481,88	
1983		11039,24			13425,12	
1984		9632,54			13877,92	
1985		7919,65			14114,81	
1986		6304,26			14461,07	
1987		5932,3			16308,97	
1988		5856,38			18936,96	
1989		6085,96			20715,63	
1990		7246,02	0,698		21448,36	0,85
1991		7883,25	0,706		21768,34	0,853
1992		7932,09	0,711		20879,85	0,856
1993		7485,54	0,715		20121,16	0,854
1994		7421,29	0,719		19935,38	0,859
1995		7690,58	0,723		20613,79	0,861
1996		8335,8	0,728		21227,35	0,863
1997		8551,68	0,732		21901,56	0,863
1998		7419,16	0,737		21024,59	0,861
1999		8007,96	0,739		22315,25	0,864
2000		9171,33	0,744		24271	0,868
2001		8684,65	0,747		23822,06	0,872
2002		8695,4	0,749		24255,34	0,877
2003		9609,97	0,756		28300,46	0,882
2004		11185,14	0,765		32143,68	0,887
2005		13791,46	0,771		36382,51	0,892
2006		15384,74	0,778		40504,06	0,895
2007		16516,63	0,784		44659,89	0,891
2008		20078,26	0,793		46710,5	0,893
2009		16113,14	0,797		40876,31	0,893
2010		19262,55	0,81		47562,08	0,895
2011		23745,88	0,824		52223,7	0,899
2012		25243,6	0,837		52669,09	0,906
2013		24845,13	0,846		52635,18	0,91
2014		24464,21	0,853		50956	0,914
2015		20627,92	0,857		43596,14	0,917
2016		19878,77	0,857		42315,61	0,92
2017		20802,46	0,856		45129,43	0,921
2018		24228,84	0,857		46548,64	0,922
2019		23450,56			46328,67	0,922
2020		20203,67	0,854		43258,27	0,929

Year	Iraq	GDP per capita (current US\$)	Human Development Index (0–1)	China	GDP per capita (current US\$)	Human Development Index (0–1)
1980		3850,26	0,5		194,8	0,423
1981		2693,16			197,07	
1982		2936,6			203,33	
1983		2747,97			225,43	
1984		3090			250,71	
1985		3113			294,46	
1986		2970,79			281,93	
1987		3492,28			251,81	
1988		3773,38			283,54	
1989		3873,62			310,88	
1990		10356,9	0,574		317,88	0,501
1991		22,8	0,532		333,14	0,509
1992		30,09	0,548		366,46	0,52
1993		54,44	0,563		377,39	0,53
1994		204,27	0,566		473,49	0,537
1995		639,92	0,569		609,66	0,549
1996		502,03	0,575		709,41	0,558
1997		968,53	0,583		781,74	0,566
1998		932,31	0,597		828,58	0,574
1999		1617,47	0,604		873,29	0,583
2000		2058,26	0,608		959,37	0,591
2001		1494,39	0,615		1053,11	0,599
2002		1320,73	0,616		1148,51	0,61
2003		854,83	0,604		1288,64	0,622
2004		1391,96	0,628		1508,67	0,631
2005		1855,52	0,632		1753,42	0,643
2006		2373,21	0,637		2099,23	0,657
2007		3182,84	0,639		2693,97	0,67
2008		4636,64	0,646		3468,3	0,681
2009		3853,83	0,648		3832,24	0,69
2010		4657,28	0,652		4550,45	0,702
2011		6045,49	0,658		5614,35	0,711
2012		6836,07	0,662		6300,62	0,719
2013		7076,55	0,662		7020,34	0,727
2014		6637,68	0,662		7636,12	0,735
2015		4688,32	0,665		8016,43	0,742
2016		4550,66	0,672		8094,36	0,749
2017		4985,45	0,684		8816,99	0,753
2018		5915,85	0,689		9905,34	0,758
2019		5943,46	0,689		10143,84	0,758
2020		4583,75	0,674		10408,67	0,761

<b>Year</b>	<b>United Arab Emirates</b>	GDP per capita (current US\$)	Human Development Index (0–1)	<b>Brazil</b>	GDP per capita (current US\$)	Human Development Index (0–1)
1980		42764,54	0,64		1966,9	0,545
1981		44987,54			2088	
1982		40025,82			2144,8	
1983		34843,16			1465,11	
1984		32309,83			1422,68	
1985		29720,9			1301,98	
1986		23467,88			1563,1	
1987		23726,31			1685,82	
1988		22295,12			1802	
1989		24028,26			2371,57	
1990		27729,39	0,724		2622,26	0,613
1991		26612,25	0,735		2259,24	0,62
1992		26420,86	0,738		2127,51	0,626
1993		25596,74	0,745		2348,09	0,634
1994		25848,02	0,755		3295,24	0,642
1995		27221,93	0,764		4748,39	0,651
1996		28975,08	0,765		5166,16	0,657
1997		29512,67	0,766		5282,05	0,664
1998		26899,6	0,769		5087,08	0,67
1999		28470,89	0,776		3479,84	0,675
2000		33291,37	0,782		3749,91	0,684
2001		31280,76	0,787		3160,25	0,691
2002		31567,55	0,793		2839,49	0,698
2003		33499,1	0,798		3070,44	0,694
2004		36333,19	0,803		3637,31	0,697
2005		39365,46	0,809		4790,46	0,7
2006		41907,42	0,814		5886,39	0,701
2007		41809,46	0,819		7348,19	0,705
2008		44498,94	0,821		8831,18	0,716
2009		32024,2	0,819		8597,79	0,718
2010		33893,28	0,821		11286,07	0,726
2011		39194,68	0,826		13245,39	0,73
2012		40976,5	0,832		12370,22	0,734
2013		42412,64	0,839		12300,39	0,752
2014		43751,82	0,847		12112,83	0,755
2015		38663,39	0,86		8813,99	0,755
2016		38141,88	0,863		8710,06	0,757
2017		40644,79	0,864		9928,68	0,76
2018		43839,32	0,866		9151,38	0,761
2019		42701,44			8876,06	0,761
2020		36284,55	0,89		6814,88	0,765

Year	Kuwait	GDP per capita (current US\$)	Human Development Index (0–1)	Iran	GDP per capita (current US\$)	Human Development Index (0–1)
1980		20924,21	0,702		2441,44	0,49
1981		17408,52			2499,99	
1982		14312,46			3008,15	
1983		13233,84			3583,33	
1984		13132,76			3568,66	
1985		12356,88			3805,58	
1986		9771,14			4244,69	
1987		11535,17			2617,7	
1988		10169,04			2318,46	
1989		11617,11			2197,96	
1990		8794,61	0,712		2214,33	0,577
1991		5419,59	0,673			0,594
1992			0,666			0,608
1993			0,695		1067,31	0,619
1994			0,722		1185,69	0,629
1995		16932,09	0,748		1569,26	0,64
1996		19358,37	0,772		1932,81	0,647
1997		17748,85	0,775		1804,34	0,653
1998		14166,16	0,781		1723,84	0,659
1999		15435,13	0,786		1756,9	0,664
2000		18440,38	0,786		1670,01	0,671
2001		16587,25	0,785		1909,41	0,678
2002		17846,38	0,788		1911,68	0,683
2003		22148,38	0,791		2253,94	0,69
2004		27011,65	0,789		2756,2	0,691
2005		35591,04	0,783		3246,05	0,696
2006		42781,57	0,788		3774,36	0,732
2007		45782,15	0,789		4904,67	0,736
2008		55494,93	0,79		5717,31	0,741
2009		37561,73	0,792		5709,95	0,747
2010		38577,5	0,794		6599,66	0,756
2011		48631,79	0,796		8389,27	0,767
2012		51979,12	0,8		8525,77	0,782
2013		49388,05	0,798		6443,03	0,785
2014		44062,34	0,8		5943,05	0,788
2015		29869,55	0,807		5200,68	0,789
2016		27653,16	0,809		5755,8	0,799
2017		29759,47	0,809		6032,06	0,799
2018		33399,06	0,808		4046,34	0,797
2019		32373,25	0,808		3514,04	0,797
2020		24811,77	0,806		2756,75	0,783

Year	Qatar	GDP per capita (current US\$)	Human Development Index (0–1)	Australia	GDP per capita (current US\$)	Human Development Index (0–1)
1980		35010,39	0,729		10211,84	0,841
1981		34926,7			11854,59	
1982		27402,27			12788,55	
1983		20910,45			11538,4	
1984		19645,31			12454,55	
1985		16590,8			11459,18	
1986		12704,37			11384,94	
1987		12901,52			11645,45	
1988		13611,45			14279,16	
1989		14052,59			17828,05	
1990		15454,18	0,757		18243,47	0,866
1991		14124,26	0,754		18855,76	0,867
1992		15434,21	0,757		18604,19	0,868
1993		14270,97	0,768		17667,19	0,872
1994		14544,01	0,78		18079,38	0,875
1995		15849,57	0,789		20358,33	0,883
1996		17337,42	0,801		21904,29	0,886
1997		21104,76	0,806		23509,42	0,889
1998		18593,41	0,81		21345,97	0,892
1999		21723,81	0,814		20558,96	0,895
2000		29976,17	0,816		21697,71	0,898
2001		28517,22	0,817		19527,32	0,9
2002		30214,67	0,822		20117,79	0,903
2003		34517,6	0,83		23492,4	0,904
2004		42124,94	0,832		30513,94	0,907
2005		51455,95	0,838		34081	0,902
2006		59530,56	0,835		36117,49	0,905
2007		65421,38	0,838		41001,14	0,908
2008		80234,19	0,843		49654,91	0,922
2009		59094,66	0,841		42783,32	0,923
2010		67403,09	0,834		52087,97	0,926
2011		82409,95	0,845		62574,14	0,928
2012		85075,98	0,85		68027,84	0,932
2013		85050,69	0,857		68156,63	0,926
2014		83858,34	0,854		62511,69	0,929
2015		63039,11	0,851		56707,02	0,933
2016		57162,97	0,847		49881,77	0,935
2017		59124,87	0,848		53934,25	0,937
2018		65907,95	0,848		57180,78	0,938
2019		62087,97	0,848		54875,29	0,938
2020		50124,39	0,848		51680,32	0,944

Year	Norway	GDP per capita (current US\$)	Human Development Index (0–1)	Algeria	GDP per capita (current US\$)	Human Development Index (0–1)
1980		15772,2	0,793		2203,06	0,509
1981		15512,5			2237,09	
1982		15224,9			2210,3	
1983		14927,5			2312,66	
1984		14989,5			2467,35	
1985		15753,6			2582,88	
1986		18883,3			2756,96	
1987		22505,9			2807,5	
1988		24207,3			2417,38	
1989		24281,1			2215,96	
1990		28242,9	0,85		2408,82	0,578
1991		28596,9	0,856		1731,62	0,582
1992		30524	0,862		1776,03	0,589
1993		27963,7	0,87		1807,3	0,593
1994		29315,8	0,885		1507,89	0,597
1995		34875,7	0,883		1452,28	0,602
1996		37322	0,888		1603,94	0,61
1997		36629	0,894		1619,8	0,619
1998		34788,4	0,906		1596	0,629
1999		36371,1	0,911		1588,35	0,638
2000		38131,5	0,917		1765,03	0,646
2001		38542,7	0,916		1740,61	0,655
2002		43084,5	0,918		1781,83	0,666
2003		50134,9	0,924		2103,38	0,676
2004		57603,8	0,934		2610,19	0,685
2005		66810,5	0,932		3113,09	0,694
2006		74148,3	0,936		3478,71	0,699
2007		85140	0,938		3950,51	0,708
2008		96944,1	0,938		4923,63	0,711
2009		79977,7	0,938		3883,27	0,72
2010		87693,8	0,942		4480,79	0,73
2011		100601	0,943		5455,68	0,738
2012		101524	0,942		5592,22	0,737
2013		102913	0,946		5499,59	0,746
2014		97019,2	0,945		5493,06	0,749
2015		74355,5	0,948		4177,89	0,751
2016		70460,6	0,951		3946,45	0,755
2017		75496,8	0,953		4109,7	0,758
2018		82267,8	0,954		4142,02	0,759
2019		75719,8	0,954		3989,67	0,759
2020		67329,7	0,957		3306,86	0,748