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447 Report by Dawud Ansari and Hella Engerer

Coronavirus pandemic and low oil prices putting pressure on the Gulf countries

- Lower oil prices due to the coronavirus pandemic as well as OPEC+ production cuts have led to low export revenue in the oil-dependent Gulf states
- Recent estimates of oil market data as well as price simulations using the DIW Berlin model OILMOD show that a quick recovery of the oil sector is unlikely
- Continued oil-dependency conflicts with global measures to combat climate change; dialogue necessary

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AT A GLANCE

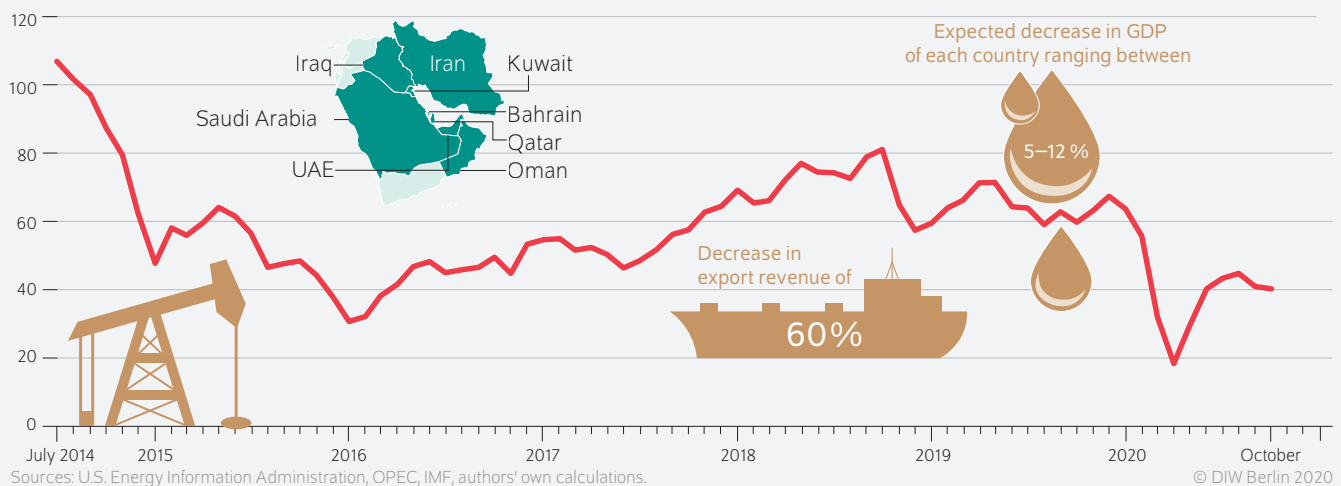
Coronavirus pandemic and low oil prices putting pressure on the Gulf countries

By Dawud Ansari and Hella Engerer

- Lower oil prices due to the coronavirus pandemic as well as OPEC+ production cuts have led to low export revenue in the oil-dependent Gulf states
- Using a model of the oil market, DIW Berlin simulates oil price development and draws conclusions about future exports
- Quick recovery of oil market and oil prices unlikely
- Additional expenditure due to the pandemic reduce fiscal space of the Gulf states
- Continuing the status quo of oil-dependency conflicts with global measures to combat climate change; dialogue necessary

Economic situation of the Gulf states remains tense: downside pressure for oil prices remains

Monthly spot price for Brent crude oil in USD per barrel



FROM THE AUTHORS

The oil market remains very fragile. Due to low diversification, the situation remains tense in the Gulf states, but a rapid shift away from oil dependence is still unlikely.

— Dawud Ansari —

MEDIA



Audio Interview with Dawud Ansari (in German)
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Coronavirus pandemic and low oil prices putting pressure on the Gulf countries

By Dawud Ansari and Hella Engerer

ABSTRACT

The coronavirus pandemic has affected the Gulf countries in a particular way. In addition to the direct consequences of the pandemic, the spread of the coronavirus has led to a collapse in demand for the Gulf countries' most important source of revenue: oil. Its price, which had fallen initially due to the price war between Saudi Arabia and Russia, collapsed in spring 2020. Although it recovered somewhat afterwards, no rebound is in sight. Market simulations by DIW Berlin that analyze the future price development demonstrate there is a clear risk of the downward trend continuing in the short term. As a result, export revenue is likely to further decline in the Gulf states. The countries' fiscal space will shrink due to pandemic-related additional expenses as well. Generally, long-term challenges faced by this region, such as diversification and the possibility of a global energy transition, are at the risk of not being properly addressed.

After a slight decline over the course of 2019, the price of oil collapsed in spring 2020 due to a global reduction in demand as a result of the coronavirus pandemic (Figure 1). In the months following, the oil price increased slightly due to the new OPEC+¹ agreement. The Gulf countries'² export revenue, heavily dependent on oil exports, have decreased by about 60 percent as a consequence of the price slump, according to DIW Berlin calculations.

The pandemic is also increasingly burdening the Gulf states' health care systems and economies. According to WHO data, the initial cases of coronavirus in the region were reported at the end of January 2020. Most countries reacted swiftly and imposed lockdowns. As of fall 2020, however, new daily cases began increasing, especially in Iran. The pandemic has especially hit the smaller Gulf states of Bahrain and Qatar (with 5,000 cases per 100,000 inhabitants each), even by global standards.

The following section analyzes the recent development of the oil market. Subsequently, we present simulation results from DIW Berlin's oil price model (OILMOD) and export revenue estimates for the Gulf states. The analysis shows that pandemic and price war hit the Gulf during a phase of already weak growth. This has reduced their fiscal space, even though many have reserves in the form of sovereign wealth funds or from other sources.

OPEC and the crude oil market

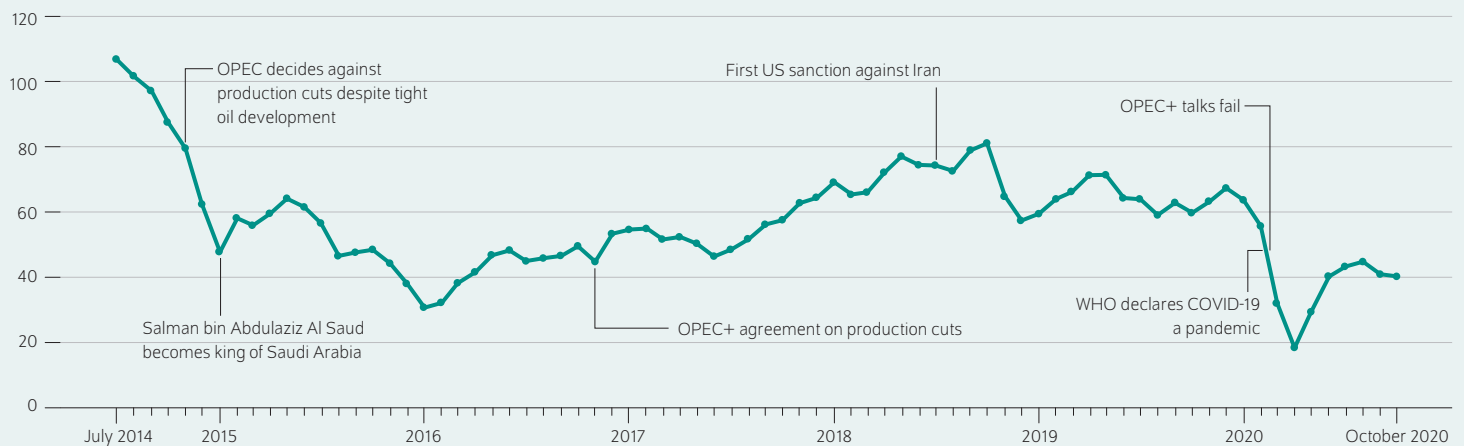
In 2019, the oil market was still largely balanced (Figure 2), although global consumption growth was already below expectations. However, oil consumption fell rapidly as a result of the coronavirus pandemic and the associated global economic downturn in the first quarter of 2020. Despite the drop in consumption, production was not curbed immediately. This resulted in an amount of a good seven million barrels being

¹ OPEC+ encompasses the Organization of the Petroleum Exporting Countries (OPEC) as well as other important petroleum exporters, such as Russia. The group originally agreed on joint production cuts to stabilize the price during the price slump of 2014 to 2016.

² This article focuses on the countries of the Gulf Cooperation Council (GCC): the United Arab Emirates (UAE), Saudi Arabia, Qatar, Bahrain, Oman, and Kuwait. Iran and Iraq, as neighboring states, are considered additionally.

Figure 1

Monthly spot price for Brent crude oil in USD per barrel and central developments, 2014 to 2020



Source: U.S. Energy Information Administration

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After the OPEC+ agreement stabilized oil prices in 2016, they collapsed again in spring 2020.

stockpiled. In April 2020, lockdowns worldwide caused oil consumption to decline by around 18 percent. As a result, around 20 percent of global oil production was not met by demand. This imbalance created an unprecedented excess of almost 20 million barrels of oil in April 2020 alone. Inventory capacities, which can buffer the price effects of market imbalances, were thus exhausted globally. When oil futures matured at the end of April 2020 and traders were obliged to physically settle the trades, some oil benchmarks even dropped to significant negative prices.³ In other words: crude oil traders were forced to pay their customers to dispose of their excess oil.

Production was not cut more quickly for many reasons, including a price war between Saudi Arabia and Russia: Their negotiations on extending the OPEC+ agreement to reduce production had failed.⁴ On March 8, 2020, after Russia had decided to end talks, Saudi Arabia responded with massive discounts to its selling prices and by announcing a 20-percent expansion of their own production.

Oil prices stabilize again following the collapse

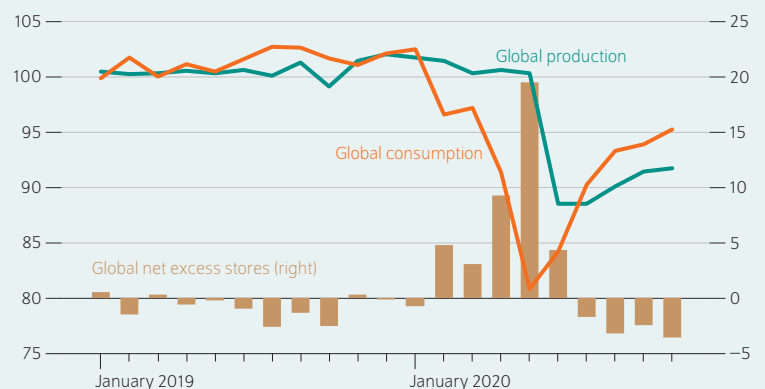
In light of these developments, the OPEC+ countries decided to make extensive production cuts in the amount of about ten

³ Negative prices were unknown to the crude oil market but not to other energy markets. In electricity markets, producers have no opportunity to get rid of excess power, which is why negative market prices occur frequently.

⁴ See Dawud Ansan and Claudia Kemfert, "Erdölmärkte zwischen Corona-Krise, Preiskrieg und Förderkürzung," *DIW aktuell* 36 (2020) (in German; available online; accessed on November 13, 2020. This applies to all other online publications in this report unless stated otherwise). Saudi Arabia wanted to continue the production cuts in order to maintain the price of 60 USD per barrel. Russia, in contrast, wanted to reverse the cuts and thus reduce the market price towards 40 USD per barrel. Such a price would have put enormous pressure on the American tight oil industry, which on average requires prices above 40 USD per barrel to expand. Russian oil is profitable at a price of typically 40 USD per barrel; in Saudi Arabia and other Gulf states, oil is profitable at five USD per barrel on average.

Figure 2

Worldwide production, consumption, and inventory increases of crude oil in millions of barrels daily



Sources: U.S. Energy Information Administration, DIW calculations.

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The coronavirus pandemic has led to a substantial imbalance in crude oil production and consumption.

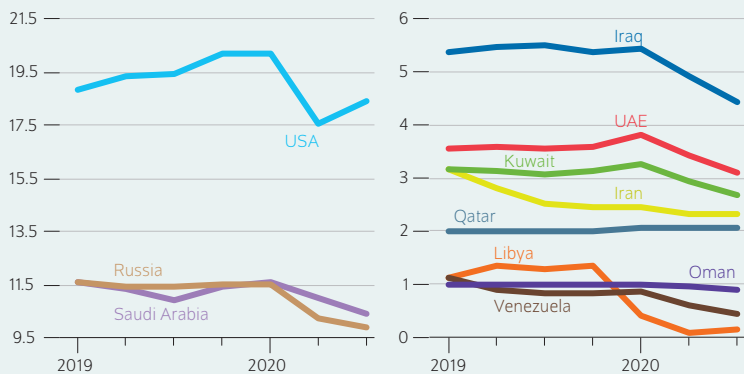
million barrels a day in April 2020. These cuts were implemented in May 2020. Since June 2020, inventory capacities have become available again as a result of cuts and recovering demand. The price has climbed back to a moderate level of 40 USD per barrel.⁵

The production decline compared to 2019 is 15 percent on average for all OPEC+ members (Figure 3). Qatar and Oman

⁵ Unless mentioned otherwise, all prices in this paper are given in the price of Brent crude oil, which is recognized as the global reference price.

Figure 3

Production of liquid fuels (including crude oil and biofuels) in millions of barrels daily



Sources: U.S. Energy Information Administration, OPEC, DIW calculations.

© DIW Berlin 2020

Although the reasons vary, production has declined significantly in most countries.

The world's top producer, the USA, did not undertake any strategic production cuts; rather, large parts of the tight oil industry⁷ became unprofitable due to declining oil prices. The number of active drilling sites has declined by about three fourths and led to a wave of bankruptcies as well as a loss of 100,000 jobs.⁸

Is the worst over for the oil market?

OPEC seemed confident in October 2020 that the oil market had survived the worst.⁹ According to their estimate, demand will recover and reach 2019 levels at the beginning of 2022.¹⁰

In the short term, the price of oil depends primarily on two factors: the further course of the pandemic and the cohesion within the OPEC+ group.

The first factor is the pandemic. An increase in COVID-19 cases and, thus, a reintroduction of lockdowns, would dampen global oil demand. As a result, production cuts even longer-lasting and more wide-reaching than previously expected would be necessary. In contrast, were the pandemic to abate rapidly, demand would increase and thus make production cuts increasingly unnecessary.

The oil price also depends on the cohesion of the OPEC+ coalition, which is facing a new test of strength. In light of low export revenue, oil producers have strong incentives not to comply with any production cuts agreed upon and to create urgently needed additional revenue. Many producers are calling for production expansions, such as the United Arab Emirates (UAE). In contrast, Saudi Arabia has a reputation for strictly enforcing agreements and sanctioning non-compliant members (such as in 1986, 2015, and March 2020). Therefore, a massive production expansion could result from just one member going ahead on its own.

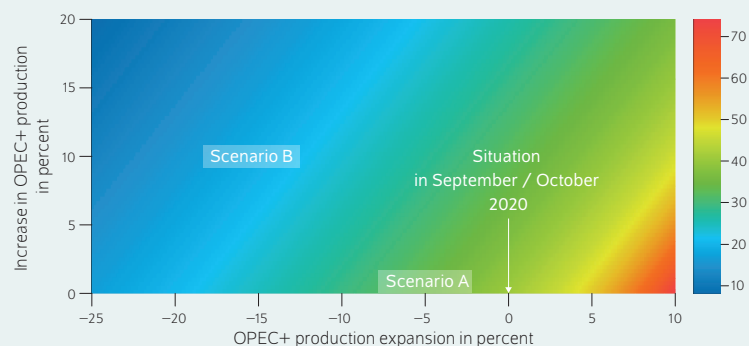
Simulation results of DIW Berlin's oil price model

We simulate the effects of changes in crude oil demand and increases in OPEC+ production using DIW Berlin's OILMOD model (Box). A decrease in demand can be viewed as the result of a strong second wave of the virus, while an increase in production can be seen as the result of a destabilization of the output cut agreement. Other factors, such as market structure, extraction capacities, or costs, are assumed to be constant in the simulations.

The simulated price levels for the different combinations of factors show various possible developments (Figure 4).

Figure 4

Simulation results for the price of crude oil (in USD per barrel of Brent)



Note: Zero percent represents the state as of September 2020.

Source: Authors' own calculations using OILMOD

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The coronavirus pandemic, unstable production cut agreements, and producers returning to the market (like Libya or Iran) pose considerable risks for the price of oil.

hardly curbed their production, but Iraq and Russia, for example, stopped more than 18 percent of their output. Although Saudi Arabia's reserve capacity only increased by four percentage points, it is 25 percent overall. There were also production losses in Libya, Iran, and Venezuela, although they can mainly be attributed to conflicts or sanctions.⁶

⁶ See Aleksandar Zaklan, Dawud Ansari, and Claudia Kemfert, "Rohölmarkt: Iran-Sanktionen dürften zu moderatem Preisanstieg führen," *DIW Wochenbericht* no. 49 (2018): 1053-1059 (in German; available online).

⁷ The rapid expansion of tight oil almost doubled the US crude oil production capacity between 2010 and 2014. Tight oil projects are more expensive and take less time than conventional oil production. The market continues to be characterized by a large number of smaller companies and a high degree of debt financing. See also Dawud Ansari, "Rigging economics," *Nature Energy* 4, no. 4 (2019): 263-264.

⁸ Deloitte Insights, *The future of work in oil, gas and chemicals* (available online).

⁹ Reuters, *OPEC Chief says the worst is over for oil market* (available online).

¹⁰ OPEC Monthly Report October 2020 (available online).

In principle, prices between ten and 76 USD per barrel are possible within the range of considered demand changes¹¹ (decline by 25 percent up to an increase by ten percent) and OPEC+ production cuts (none or an increase by 20 percent). Results show that possible changes in demand have a greater effect on the price than expansions of the output.¹²

To illustrate this, the following section presents two possible scenarios¹³ in greater detail:

In **Scenario A**, a decline in demand of five percent as well as continued production cuts are assumed. This situation would occur if the second wave is mild and OPEC+ cohesion remains strong. In this case, the price effect would be limited, with an oil price of around 35 USD per barrel.

Scenario B assumes a decline in demand of 15 percent as well as a simultaneous expansion of OPEC+ production by ten percent. This situation could occur with a stronger second wave as well as destabilization of the OPEC+ agreement. In this situation, the oil price would fall to less than 25 USD per barrel.

Furthermore, Scenario B is relevant from another standpoint: Currently, missing exports from Iran and Libya are contributing to stabilizing the price, but this could soon change. Libyan exports have increased again recently and a further increase is likely, despite foreign policy and military pressure, especially from the UAE. Additionally, as US President Donald Trump was not reelected in November 2020, it is conceivable that the new Democratic administration will change course regarding the Iran sanctions. These situations alone could lead to production expansions in the amount of five to ten percent, respectively. Decisions made at the OPEC summit at the end of November 2020 could not be taken into consideration in this report.

A decline in oil price and production cuts cause export revenue in the Gulf states to collapse

Oil-rich countries such as the Gulf states are dependent on revenue from oil exports. In the countries of the Gulf Cooperation Council (GCC), 55 (Bahrain) to 90 (Kuwait) percent of exports and 52 (Qatar) to 94 (Saudi Arabia) percent of government revenue come from the oil and gas sector.¹⁴ Thus, the economies of the Gulf states have low levels of diversification.

¹¹ Unless otherwise noted, all changes are to be understood relative to the September 2020 values.

¹² A decrease in demand of 20 percent (which roughly corresponds to the situation in spring 2020) would lead to prices close to 20 USD per barrel; an increase in demand of ten percent would lead to prices of around 75 USD. In contrast, even a complete collapse of production cuts (which corresponds to an increase of a little over 20 percent) at the demand level of September 2020 would still have a price of 25 USD per barrel.

¹³ The scenarios do not make any price predictions. Rather, they serve to illustrate two plausible future developments. Other relevant scenarios can be envisioned as well.

¹⁴ Two exceptions remain: the UAE, with only 20 percent of exports coming from the oil and gas industry and Oman, with only 43 percent of its state revenue coming from the oil and gas industry. See Dawud Ansari and Franziska Holz, "Between stranded assets and green transformation: Fossil-fuel-producing developing countries towards 2055," *World Development* 130 (2020): 104947 (available online) as well as Natural Resource Governance Institute (available online).

Box

Estimating crude oil prices with OILMOD

OILMOD is a sectoral energy model by DIW Berlin¹, which is used to analyze market developments. The model has been previously used for analyses of the crude oil market, released in DIW Berlin publications² as well as scientific articles.³

As a numerical partial-equilibrium model,⁴ OILMOD simulates market results as an outcome of the strategic interaction between profit-maximizing oil producers. The model uses data from the International Energy Agency (IEA), the Oil & Gas Journal, the US Energy Information Administration, OPEC, and data from peer-reviewed scientific publications. Due to the globalized structure of the crude oil sector, the model considers an aggregated market. Nonetheless, it depicts technological and geophysical characteristics of oil production through detailed cost curves and quality parameters for different types of oil.

In this report, we analyze the effect of changes in demand as well as an increase in OPEC+ production. To analyze the former, we scale a quantitative parameter in the demand function. This reflects a tendency towards a lower willingness to consume, but still allows the model to take into account behavioral adjustments of consumers and producers. Thus, the eventual consumption is the product of the simulated market mechanisms under the changed conditions. The model uses percentage reduction in existing OPEC reserve capacities in the respective countries to simulate an increase in OPEC+ production. In all scenarios, OPEC+ production is continued at a pre-determined level while other market participants strategically reduce their production to adjust to the new market conditions. Due to the lower concentration of companies in the tight oil sector, it is assumed that production in the USA will adjust in a fully competitive manner.

¹ For an overview, see the models of the Energy, Transport, Environment Department at DIW Berlin (available online).

² See, for example, Dawud Ansari and Claudia Kemfert, "Erdölmärkte zwischen Corona-Krise, Preiskrieg und Förderkürzung," *DIW aktuell* 36 (2020) (in German; available online).

³ Dawud Ansari, "OPEC, Saudi Arabia, and the shale revolution: Insights from equilibrium modelling and oil politics," *Energy Policy* 111 (2017): 166-178.

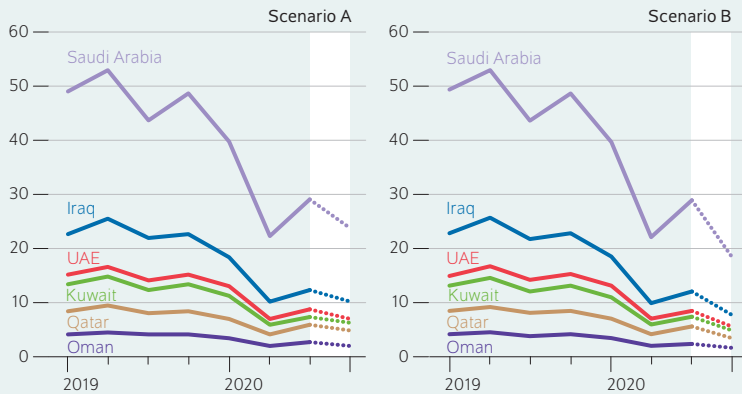
⁴ A thorough description of the model can be found in Aleksander Zaklan, Dawud Ansari, and Claudia Kemfert, "Crude oil: market trends and simulations point toward stable equilibrium," *DIW Economic Bulletin* no. 51+52 (2017) (available online).

The simultaneous decline of prices and output caused export revenue to collapse (Figure 5). On average, the decline has been about 60 percent compared to 2019. The largest oil producer, Saudi Arabia, earned around 30 billion USD less in the second quarter of 2020 than in the second quarter of 2019.

Export revenue is not expected to recover in the near future, as estimates using scenarios A and B show. Scenario A would imply a decline in export revenue to the level of the second quarter of 2020, whereas Scenario B would fall significantly short of that level.

Figure 5

Estimates of quarterly export revenue of the Gulf states in billions of USD, Scenarios A and B



Sources: U.S. Energy Information Administration, OPEC, DIW calculations.

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Due to the simultaneous decline of prices and production, export revenue has decreased by around 60 percent and is trending downwards.

The decline in export revenue has not affected all countries equally. Moreover, the Gulf states are not a homogeneous group: Iraq and Iran, not members of the GCC, have a per capita income of a little over 5,000 USD and are, thus, developing economies. In contrast, with a per capita income of 60,000 USD, Qatar is one of the richest countries in the world, followed by the UAE with a per capita income of roughly 40,000 USD. The rest of the Gulf countries have a GDP between around 15,000 USD (Oman) and 30,000 USD (Kuwait), well above the threshold of developing countries.

Oil price drop and coronavirus pandemic hit the Gulf states during a period of weak growth

Economic growth in the Gulf region collapsed due to the coronavirus pandemic, especially in the second quarter of 2020. At five to eight percent, the decline in the countries for which preliminary data are available has been roughly as pronounced as in other developed economies. However, the pandemic hit oil-exporting countries in the Gulf region during a period of already weak growth. Due to the developments on the oil market, these countries had been faced with declining export revenue even before the pandemic, and economic growth had even leveled off in some countries. Additionally, extraordinary factors negatively affected economic growth in Qatar (the blockade,¹⁵ delays in infrastructure projects), Iran (sanctions), and Iraq (crisis and conflicts).¹⁶

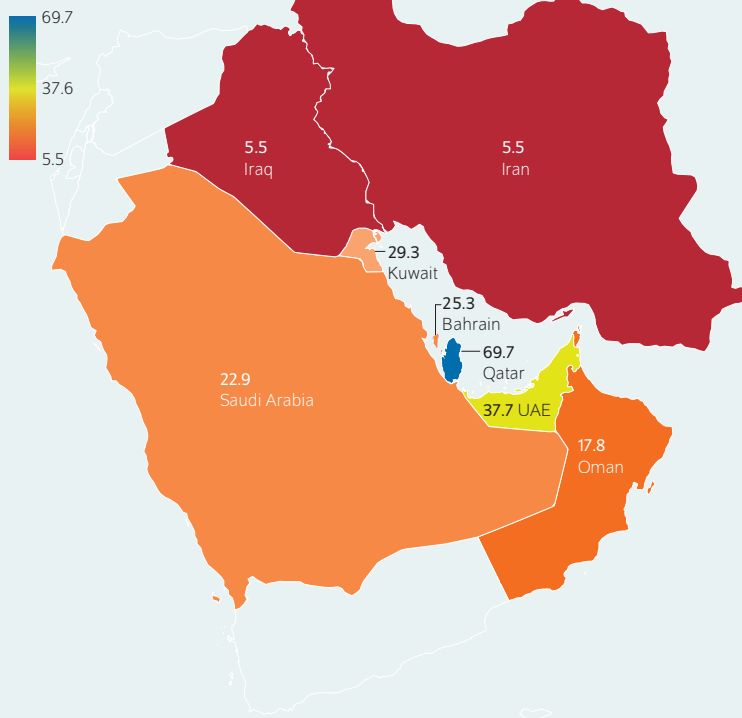
Estimates from the International Monetary Fund (IMF) assume that the GDP of the Gulf states in 2020 will sink between 12 percent (Iraq) and five percent (Bahrain) (Figure 7). The projected decline in Saudi Arabia, Bahrain, and Qatar is about one percentage point stronger than the decline in the global economy. Sectors that were hit particularly hard by the pandemic, such as tourism and transportation, had been further expanded in the past years by some Gulf states (such as the UAE, Qatar, and Bahrain) as a part of a strategy to reduce their dependency on the oil sector. In Saudi Arabia, revenue from pilgrimages has mostly disappeared, which usually brings in around 15 billion USD annually.

Even before the pandemic, declining export revenue was accompanied by government deficits in some countries. Compared to the 2014 oil crisis, debt in many Gulf states had also increased, especially in Bahrain (Figure 8). Therefore, many countries in the region have been implementing some austerity measures: Subsidies have been reduced, taxes have been increased, and state infrastructure projects have been cut back or postponed. In most countries, the debt remains manageable; however, the situation is worsening in some, such as Bahrain and Oman.

Figure 6

GDP per capita 2019 in the Gulf states

Per capita GDP
in thousand US-Dollar



Source: IMF

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Even among the wealthy GCC countries, there are massive differences in prosperity.

¹⁵ As a result of escalations in a diplomatic conflict, Saudi Arabia, the UAE, Egypt, and Bahrain imposed an embargo on Qatar in mid-2017, which placed comprehensive restrictions on both trade and travel.

¹⁶ On the situation in Iraq before the coronavirus pandemic, see the International Monetary Fund, "Iraq 219 Article IV consultation and proposal for post-program monitoring -Press release; staff report; and statement by the executive director for Iraq," *IMF Country Report* no. 19/248 (available online).

As a result of the pandemic, the Gulf countries have been confronted with additional expenditure to support the economy and health system. The countries have implemented different fiscal measures, such as tax deferrals, an expansion of financial aid to the unemployed and low earners, and support for small and medium enterprises.¹⁷ At the same time, however, due to the reduced fiscal space, counteractive measures were implemented, such as the drastic increase in in Saudi Arabia's value-added tax at the beginning of July 2020. Overall, the Gulf states' pandemic-related additional expenditure (around 5.7 percent of GDP in Bahrain and 0.2 percent of GDP in Iraq) is below that of other regions.¹⁸

In the past, some Gulf states had used periods of high oil prices to build up reserves and feed them into sovereign wealth funds (SWFs).¹⁹ The funds differ in their goals, ranging from macroeconomic stabilization to inter-generational distribution or to economic development. Worldwide, SWFs are estimated to total around 8.8 trillion USD, with the Gulf states accounting for around 3.15 trillion USD of that amount. In some Gulf states, SWFs are used as stabilization funds to bridge financial bottleneck periods or they are utilized domestically in sectors heavily affected by the pandemic. SWFs in the Gulf states, however, also took advantage of the opportunity of lower stock prices at the beginning of the pandemic to make acquisitions.²⁰ In some cases, they oriented their investment policy towards achieving returns. Due to the current challenges posed by the coronavirus, the concept of taking climate change considerations into greater account when making investment decisions (also pursued by the SWFs of the GCC countries recently) will likely not be pushed forward. So far, the volume provided by SWF for "green finance" has been small.²¹

Conclusion and outlook: fundamental issues in the Gulf states must still be addressed

The coronavirus pandemic and declining export revenue have affected the Gulf states in a phase of already weak GDP growth. Simulations and estimates in this report have shown that an unstable oil market will continue to plague producers for some time to come. Additional expenditure due to the pandemic has further reduced the Gulf states' fiscal space. In the past, some of the countries had built

¹⁷ The Gulf states also implemented monetary and macroprudential measures. For more on the individual measures implemented in each country, see the International Monetary Fund, *Regional Economic Outlook: Middle East and Central Asia* (October 2020) (available online).

¹⁸ Fiscal Monitor, *Database of Country Fiscal Measures in Response to the COVID-19 Pandemic* (available online).

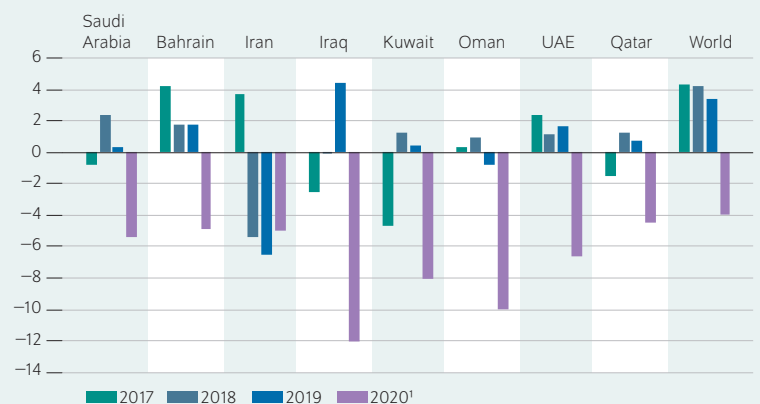
¹⁹ Other (commodity-exporting) economies have established SWFs as well. The most well-known example is Norway, which established the Government Pension Fund of Norway using petroleum revenue.

²⁰ See Bernardo Bortolotti, Bocconi Velko Fotak, and Bocconi Chloe Hogg, *Sovereign Wealth Funds and the COVID-19 shock: Economic and Financial Resilience in the Resource-Rich Countries* (available online). At the beginning of the coronavirus pandemic, SWF assets were estimated to shrink by 296 billion USD in 2020.

²¹ Estimates regarding their volume differ, but they are below one percent of the combined volume of SWFs, see OECD, *The Role of Sovereign and Strategic Investment Funds in the Low-carbon Transition* (2020) (available online).

Figure 7

Change in GDP of the Gulf states, 2017 to 2020¹



¹ The 2020 figures are estimates.

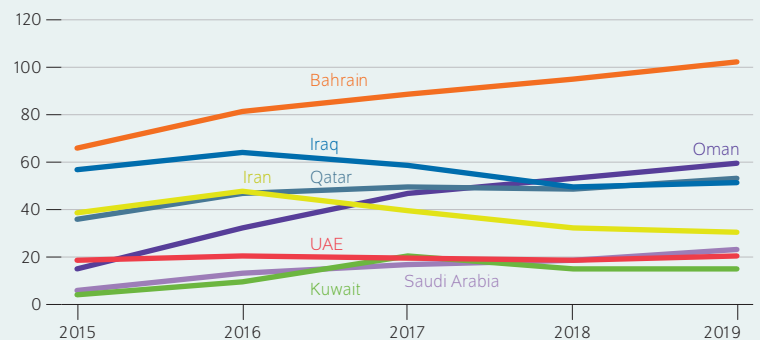
Sources: IMF, DIW calculations.

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Growth in the Gulf states was slowing already before the pandemic.

Figure 8

Gross debt of the Gulf states in percent of GDP, 2015 to 2019



Source: IMF

© DIW Berlin 2020

The debt of the Gulf states is increasing, particularly in Bahrain.

up reserves in sovereign wealth funds, which can now be used to stabilize the economy and to mitigate the effects of the pandemic.

However, the fundamental problems of the Gulf countries will remain, even after the pandemic. Beginning in the 1970s, most of the Gulf states defined economic diversification—moving away from oil—as an integral target, even though it is portrayed as a recent challenge. The focus on the very profitable oil sector has led to the creation of rigid institutional structures in these countries. Hence, the royal families have had only few incentives for implementing fundamental and sustainable economic and societal

reforms. Up to now, reform attempts have not been substantial and the eventual measures have been insufficient and occasionally bizarre.²²

Therefore, the coronavirus and a lower oil price cannot be expected to yield a change of course towards economic diversification in the Gulf countries. However, maintaining a reliance on oil is not only troublesome with respect to the economic development of the oil-dependent countries

themselves: Continued oil dependence stands in the way of implementing global climate targets. The latter is one of the most important tasks of the global community following the coronavirus pandemic. A one-sided, national climate policy that is based only on the demand side has a high chance of falling short of global targets. Instead, the perspective of developing economies and fossil fuel exporters must be given greater consideration in the discussion; after all, also fossil fuel exporters want to increase their prosperity and growth. The main question of who should shoulder the burden of fighting climate change reveals conflicting interests on a global level. The international community will have to make considerable efforts to persuade the Gulf states to make an active contribution to climate change mitigation.

22 Saudi Arabia, for example, is building a futuristic city on the Red Sea as a part of its Vision 2030, which is financed by oil export revenue. The city will include an artificial moon, glowing sand, and robotic dinosaurs. Cf. Wall Street Journal, *A Prince's 500 Billion Dollar Desert Dream* (available online).

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