



A QUARTERLY JOURNAL FOR DEBATING ENERGY ISSUES AND POLICIES

**ECONOMIC
DIVERSIFICATION IN
THE MENA**

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Diversification efforts in MENA (particularly GCC) countries obviously correlate with international oil prices. It would be naïve to believe a rapid decoupling is either feasible or necessary in the short term. Economic logic favours specialization over diversification—individuals and enterprises should concentrate on what they can do best and where they have a comparative advantage. The increasing importance of global value chains for development emphasizes this economic logic, by moving competition from entire sectors to single stages of production and even individual jobs. GCC states hold a comparative advantage in oil and gas production, so why should they not tailor their economies to this sector and approach their own diversification in the context of the value chain of petroleum products? One might argue that countries with large resource reserves and small populations could then simply accept, for the time being, that price shocks will happen periodically. Of course, GCC countries are heterogeneous, with several states now having declining reserves and sizeable populations. In this context, with additional drivers of technological advancement and environmental unsustainability, diversification is more urgent.



This issue opens with an article by *Giacomo Luciani* exploring the concept of ‘unsustainability’ of oil-exporting Gulf economies, which is often asserted as evident truth. Sustainability can be defined in multiple ways, not all of which naturally converge into an overarching, organic concept. The author shows, for instance, that GDP and export diversification are not good measures to conclude that these economies are unsustainable, arguing instead that the Gulf economies are diversifying and are much more adaptable and competitive than they were three or four decades ago. There are other potential reasons for unsustainability, however, which may be politically more relevant in the coming years. The main challenge might not be in the dimension of environmental sustainability, as Gulf countries have significant leeway to decarbonize oil and gas production with carbon capture and storage, reduce final consumption with improved efficiency and energy pricing reforms, and develop clean alternative sources. More serious are two other dimensions of sustainability: the fiscal dimension (excessive reliance on oil revenue for funding government operations) and the labour dimension (excessive reliance on expatriate labour in parallel with, and causing, unemployment among nationals, especially the youth).

Manal Shehabi also challenges the dominant discourse that economic diversification in the GCC countries is almost nonexistent. The author argues that they indeed have a diversified economic base. Nevertheless, this has failed to contribute to export revenue or to fiscal diversification due to structural constraints and economic distortions. On the one hand, diversification has succeeded, thanks to an open exchange trade system and openness to expatriate labour with its elastic supply. On the other hand, multiple factors have constrained the ability of

GCC governments to reduce their overdependence on hydrocarbon revenues—including the lack of taxation, the concentration of capital in the energy industries and abroad in sovereign wealth funds, the widespread oligopolistic structures, the dominance of the public sector, and the concentration of the local labour force in the public sector. The article illustrates these arguments in the Kuwaiti context, using a database constructed to calibrate an economy-wide model. The author concludes that what the GCC economies need is not just economic diversification but better, more meaningful, and broader diversification that removes many of the structural barriers facing the economy.

Joerg Beutel analyses economic diversification in the GCC using data from extended input-output tables to compare the performance of these economies with that of a reference case, Norway, which is considered to have successfully diversified its economy despite having a large oil resource base. The article also assesses GCC countries’ relative progress on sustainable development using a new measure, adjusted net savings, which measures the ‘true’ rate of savings in an economy after accounting for investments in physical and human capital, depletion of natural resources, and damage from environmental pollution. This view of sustainable development requires that the nation passes on an aggregate stock of physical, human, and natural capital to the next generation that is not smaller than the one that currently exists. This requires that the loss of depleting resources be offset by increasing the stock of physical and human capital. The article concludes that GCC countries have, contrary to expectation, collectively performed relatively well on diversification, but their performance on sustainable development varies.

The next article focuses on the complex political contexts within which economic diversification needs to take place in the MENA countries. *Adeel Malik* argues that economic diversification in the Middle East—far from being purely a technocratic affair—carries deep power implications for three interlocking spheres: domestic, regional, and geopolitical. By producing a greater number and variety of products, diversification not only increases the complexity of economic exchange but also risks generating independent constituencies whose political-economic effects are not neutral for either the domestic power structure or the prevailing geopolitical order. The author calls for a more holistic understanding of the challenge of diversification. First, successful diversification requires a new political settlement that allows elites to concede greater space to the private sector; second, diversification is unlikely to succeed without a regional vision that fosters complementarities among Arab economies and creates a shared economic space to deal with emergent economic challenges; and third, sustained economic change in the Middle East requires a wider set of concessions that go beyond domestic and regional political elites.

The next three articles focus on the big-picture economic contexts within which MENA oil-exporting countries face economic diversification, highlighting the process of transition and economic transformation. *Bassam Fattouh and Anupama Sen* consider the renewed sense of urgency around economic diversification in the MENA countries in the context of ‘peak demand’ and the energy transition. The authors make three main arguments. First, the speed of the energy transition is highly uncertain. Also, since the current transition is heavily driven by government policies, its speed will not be uniform across regions, making it

difficult to draw firm conclusions on a global scale. Second, the diversification strategy adopted by oil-exporting countries will be conditioned by the speed of the energy transition, during which the oil sector will continue to play a key role in these economies, including in their diversification efforts. Thus, oil producers will need to be far more strategic in developing their energy sector, including the renewables sector, strengthening forward and backward linkages to help diversify their economies. Finally, there is interdependence between the success of diversification efforts by oil exporters and the global energy transition.

Rabah Arezki provides an overview of arguments for economic diversification in economies of the Middle East and Africa. He argues that if countries were to shift their focus from the end goal, diversification, to how to get there—that is, to the transformation process—they might find it easier to diversify. The effort involves steps to shift away from the dominant oil and gas sector. A focus on transformation involves an approach to that dominant sector that can spill over to, and even help foster, other sectors. That is, by embracing transformation, countries will focus on getting incentives right for managers and other economic agents and turn technology and innovation, which energy markets now see as disruptive enemies, into friends. Countries that take this approach are less likely to stumble or resist change.

Ali Al-Saffar argues that demographic pressures and uncertainties on both the supply and demand sides mean that for countries that rely on oil and gas revenues, the imperative to reorient their economies is growing. For a group of countries with young, fast-growing populations, like Nigeria, Iraq, and Saudi Arabia, the current economic model, which channels oil and gas revenues to public-sector jobs and

government-led consumption, will be increasingly difficult to maintain, even in a scenario where oil prices trend higher. Across the Middle East, per capita income would be 50 per cent lower by 2040 in a scenario of decreasing prices and decreased demand than in a scenario where demand keeps growing and prices remain robust. At the same time, it should not be taken for granted that the comparative advantage in energy of major producers will diminish in the energy transition. The author proposes five ways the energy sector in MENA countries can adapt and ensure that it acts as a platform for development and transformation, rather than a crutch for an unbalanced economy.

This is followed by two articles that focus on fiscal sustainability—one important element of economic diversification that tends to receive an overwhelming amount of attention. *Monica Malik* and *Thirumalai Nagesh* argue that GCC countries that are most resilient, fiscally, in coping with a lower oil price environment are those with large hydrocarbon reserves relative to their populations (hydrocarbon rich per capita). These are underpinned by low debt and high foreign exchange reserves, supporting economic sustainability despite high exposure to the hydrocarbon sector. These economies still need to diversify, but because of their fiscal strength, they experience less economic pressure during times of low prices and reform. Although hydrocarbon endowment plays a strong role, varying progress in the pace of reform since 2014 indicates that other economic, social, and political factors are also important. The United Arab Emirates (hydrocarbon richer per capita) and to a lesser degree Saudi Arabia (hydrocarbon poorer per capita) have been the most proactive in fiscal reforms. Looking ahead, the author argues that deepening the tax base and lowering

the wage component of government spending will be central to boosting fiscal sustainability.

Tom Moerenhout reviews recent pricing reform strategies in the GCC countries, arguing that while it is widely believed that GCC countries still have a long way to go in terms of fuel pricing reform, progress thus far has been remarkable, and has yielded results, particularly in terms of lowering demand. There appears to be consensus among policymakers on the criticality of pricing reform. While Oman, Qatar, and the United Arab Emirates have been able to implement formula-based fuel price adjustments and have persisted in upwards revisions of fuel prices, Saudi Arabia and Bahrain have proven that one-off reforms can be followed up with further rounds when accompanied by measures to mitigate adverse impacts on consumers. The author concludes that while fuel pricing reform may not yet be a norm in the GCC economies, it is certainly a trend, as reform has continued despite the recent recovery in oil prices.

We then move to another important element of diversification: the labour markets in the MENA countries, identified in earlier articles as a key enabler of diversification. *Martin Hvidt* discusses economic diversification in the Arab Gulf countries with special emphasis on job creation. Over the next 15 years, the author estimates, more than 500,000 increasingly well-educated nationals will enter working age in the six Gulf countries, and increasing numbers will actively seek employment. The author uses the concept of value chains to address two interlinked questions: What kind of jobs should these societies aim to create in order to secure long-term economic growth and social development? And how could these states succeed in attracting national populations to jobs in the private sector?



The next four articles contain country case studies highlighting different aspects of economic diversification. *Ishac Diwan* investigates Saudi Arabia's rentier model of development and what could replace it. There is a debate between those who believe that the collapse of this model will lead to instability, and those advocating the move from the current mono-sector to a modern, diversified, knowledge-based economy. This divergence originates in the unusual structure of the kingdom's labour market, in which nationals are simply not employable in large numbers in the private sector. The author shows that huge gains could be made if this situation changed, as the national labour force is grossly underemployed as well as increasingly well-educated, increasing the opportunity cost of low participation. To employ its youth gainfully, the author argues, Saudi Arabia needs to become a 'normal oil economy' that exports mostly if not only oil but derives national income from the work of its own population, largely in the service sector. The transition could result in a smaller economy but a larger national income, with the oil sector generating a much larger multiplier effect in terms of domestic employment of nationals.

Steffen Hertog discusses Saudi Aramco's political history and position in the Saudi system and its growing role outside of the upstream sector, including in industrialization. Political changes under the new Saudi leadership have, among other things, led to plans for an initial public offering of Aramco stock and a large industrial restructuring plan under which Aramco is planning the debt-financed acquisition of a majority stake in national petrochemicals giant SABIC (Saudi Basic Industries Corporation). Aramco's prominent national role reflects its capabilities and has garnered considerable political capital but also comes with significant

noncommercial obligations, which often are not of its own making. It is too important an asset not to be used for diversification, but will come under closer local and international scrutiny as a result. While the kingdom's ambitious industrial diversification agenda provides Aramco an opportunity to shine, it also pushes the firm into a more complex political environment and requires it to operate in theatres that it is less familiar with.

Jim Krane discusses strategies undertaken by producer countries to protect the flow of oil and gas rents from climate action, by seeking ways to preserve market share for oil in general, and by differentiating national supplies of crude oil from grades produced by other countries. He focuses on Saudi Arabia, which has developed a sophisticated climate strategy in this regard that builds on its significant advantages as a low-cost oil producer with substantial market and investment power. It has staked out an early advantage in noncombustion uses for oil and gas, and has made investments that should place it in a strong future position as a relevant supplier. As international resolve has coalesced around the desirability of greenhouse gas mitigation, the author argues, the Paris Agreement also provides useful political cover for unpopular—albeit environmentally beneficial—actions like Saudi Arabia's reforms of energy subsidies.

Petter Nore discusses how Norway's Oil Fund has been a key instrument of economic diversification, serving to transfer as much capital as possible from oil and gas in the ground to other forms of capital (e.g. financial assets). The 3 per cent annual cap on the spending of Oil Fund revenues has led to greater macroeconomic stability and the ability to live with increased market risk. As short-term government spending is dependent on the return on

past savings placed in the Fund, government finances enjoy a large degree of independence from the oil price level. However, a combination of exogenous and endogenous factors could change this—such as simultaneous erosion of the value of the Fund's capital, a faster-than-expected increase in state expenses, and falling returns on investments. While Norway can influence some of these factors, it has little influence on others, such as deep international recessions.



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**UNSUSTAINABLE:
 BUT WHY?**

Giacomo Luciani

It is commonly maintained that the economies of the oil-exporting countries in the Gulf are unsustainable. This pessimistic assessment is shared by the citizens and political authorities of these countries themselves, the latter periodically proposing strategies or 'visions' to overcome perceived excessive dependency on the petroleum sector.

In most cases, unsustainability is asserted as evident truth, which does not need to be substantiated or discussed in detail. But exactly why should we say that the Gulf oil exporters' economies are unsustainable? Precisely defining the problem is important if a strategy to achieve sustainability is to be worked out.

Sustainability can be defined in multiple ways, not all of which naturally converge into an overarching, organic concept. The most immediate, and frequently referred to, concept of sustainability is tied to the finite nature of all mineral resources: What will happen when oil runs out? This question has been asked from early in the history of the region's oil production and exports, and is quite primordial. It indicates a need to find alternative sources of value added to substitute for that generated by oil production; in other words, to diversify economic activity as a necessary antidote to the intrinsically unsustainable nature of any extractive industry. Diversification, or lack thereof, is then measured based on the share of total value added (i.e. GDP) generated by the oil sector. However, this is a very crude indicator, heavily influenced by volatility in oil prices, so that when oil prices are high, diversification appears to decline

drastically, while significant progress appears to be made when oil prices decline—which of course is nonsense. Joerg Beutel's article in this issue of the *Oxford Energy Forum* deals extensively with dilemmas of measuring diversification of GDP, and I will not repeat his analysis here; suffice it to say that things look quite different when we adopt more sophisticated indicators based on input–output tables. These show that diversification, at least in some of the Gulf oil-exporting countries, has significantly improved since the start of the development effort in the 1970s.

Another approach focuses on diversification of exports. The rationale here may be that, even if oil remains available and does not run out in the foreseeable future, global demand for it may collapse, for whatever reason. The trade balances of the major oil exporters are in most cases largely positive, but non-oil exports are not sufficient to balance imports, and a complete collapse of oil exports (which is certainly an extreme hypothesis) would expose these countries to massive trade deficits. But even accepting this extreme assumption, the shift of the trade balance from surplus to massive deficit would be accompanied by compensatory swings in other items of the balance of payments. Even limiting the analysis to the current account, a total collapse of world oil demand would surely be followed by a massive decrease in the number of expatriate workers, which in turn would drastically cut the large payments for remittances, and a good chunk of merchandise imports. The point is: to any shock the market provides a counter force, so that the net result is never as bad as it may look at first sight.

The table on page 6 ranks key Gulf exporters' Economic Complexity Index (ECI) scores for 1996 and 2016. The

ECI, published by Harvard's Center for International Development, measures export diversification and competitiveness for 127 countries worldwide. The table includes several comparator countries, to highlight the extent to which superficial impressions may be misguided.

There are several interesting points to be noted in this table. To begin with, all oil or commodity exporters have low economic complexity because of their relative specialization. Thus, the US ranks lower than one may expect of the leading techno-economy in the world, and will probably show a further decline in the coming years, thanks to Donald Trump's push for 'energy dominance' (DOI, 2017). It is striking that Mexico is ranked as more complex than Canada, and both are more complex than Norway, which is normally viewed as the success case *par excellence* among oil exporters. Russia and India are rated barely more complex than Saudi Arabia and the United Arab Emirates. The latter two are doing better than New Zealand, and all Gulf Cooperation Council (GCC) countries are doing better than Australia, while Iran does just a bit worse. We normally do not worry about the sustainability of any of the comparator countries (except maybe Russia)—so the Gulf economies may be unsustainable, but lack of economic complexity does not appear to be the reason for it.

Between 1996 and 2016, all Gulf countries, including Iran, significantly improved their ECI position, while all comparator countries except Mexico lost ground. So diversification is indeed happening, and economic complexity is increasing.

A limitation of the ECI is that it is vulnerable to changes in oil prices and quite unstable for major oil exporters—for example, Saudi Arabia ranked 36th in 2004, a year of low oil prices, and 104th in 2008, a year of peak oil prices.



Ranking of Gulf countries and selected comparator countries by Economic Complexity Index

Country	2016		1996	
	Rank	ECI value	Rank	ECI value
United States	10	1.55	7	1.868
Mexico	21	1.11	25	0.817
Canada	35	0.696	23	0.898
Norway	39	0.638	32	0.592
Russian Federation	48	0.235	38	0.420
India	49	0.191	56	0.007
Saudi Arabia	50	0.171	65	-0.153
United Arab Emirates	51	0.162	80	-0.476
New Zealand	54	0.124	42	0.313
Oman	71	0.292	82	-0.510
Kuwait	73	0.314	89	-0.666
Qatar	76	-0.396	109	-0.955
Australia	86	-0.592	60	-0.026
Iran	87	-0.611	106	-0.915

Source: Center for International Development, Harvard University, [Atlas of Economic Complexity](#).

ECI for Iraq, but it would surely be much worse than Iran’s. And the gap between the Gulf economies and oil exporters elsewhere in the world is huge: Nigeria ranked 125 (out of 127 countries), Azerbaijan 120, and Angola 116. Not all countries are doing equally well, and relatively few can be said to have made real progress in diversification.

My conclusion is that GDP and export diversification are not good reasons to conclude that the Gulf oil export economies are unsustainable. Of course, the global economy is constantly evolving. Demand, supply, and terms of trade of individual products change constantly, and adaptation is a never-ending task; but the Gulf economies are diversifying and are today much more adaptable and competitive than they were three or four decades ago. Diversification is happening and is likely to continue, progressively though slowly reducing dependence on the oil sector—even if oil remains a valuable and important internationally traded commodity.

But there are other potential reasons for unsustainability, which may be politically more relevant in the coming years. Notwithstanding the very unsatisfactory record so far, I do not believe that the main challenge is likely to be environmental sustainability, because the Gulf countries have significant leeway to decarbonize oil and gas production with carbon capture and sequestration, reduce final consumption with improved efficiency, and develop clean alternative energy sources, whether renewables or nuclear (more on this in Krane’s and Al-Saffar’s articles in this issue). More serious are two further dimensions of sustainability: one fiscal (the excessive reliance on oil revenue to cover ongoing government expenditure) and the other labour-related (excessive reliance on expatriate labour—

However, oil prices were relatively low in both years compared here (1996 and 2006), so the improvement is clearly not just due to changes in oil prices. Furthermore, oil prices affect all oil exporters, so that GCC improvement relative to other oil exporters must be real. It remains true, however, that low oil prices help diversification and high oil prices hinder it. At times of growing oil prices, diversification may well be taking place but be obscured by the inflation of value added in the oil sector. When prices decline again, diversification becomes visible.

Some further comments are in order. First, the structural transformation of an economy takes time. Global oil demand may peak in 20 years (at a level above today’s), but there is no credible prospect of oil losing economic

significance for at least the next 50 years (more on this in Fattouh and Sen’s article in this issue). Diversification may become more challenging after the early successes (it is difficult to diversify when you are already diversified to begin with) but we should certainly expect further improvement in the ranking of the Gulf oil exporters. Some massive investment projects that have been undertaken in the past 10 years have yet to fully impact export statistics, because of their long gestation and the progressive ramp-up of production.

Second, there are major differences between Gulf oil exporters. The gap in 2016 between Saudi Arabia (ranked 50) and Iran (ranked 87) is greater than the gap between Norway (ranked 39) and Saudi Arabia. We do not have an



concurrent with, and causing, unemployment among nationals, especially the youth).

Excessive dependence on oil revenue is evident in all countries except perhaps those (Abu Dhabi, Kuwait, and possibly Qatar) that can accumulate sufficiently large sovereign funds, generating revenue which might substitute for hydrocarbon rent if and when the latter dwindles away. Claims about developing non-oil revenue sources have been made from time to time, but little or no action has ensued. Some fees for government services have been increased, mostly affecting foreign visitors or resident expatriates, but they do not amount to much as a share of total revenue. Taxes on international trade are not especially high and conflict with the globalization drive under the World Trade Organization. Corporate income taxes exist but are not seriously enforced. Personal income taxes limited to expatriates have been proposed, with the obvious consequence of precipitating a wave of resignation threats unless net pay was preserved. The only form of taxation that has been introduced in some of the Gulf countries is VAT at a very low rate; VAT, as a consumption tax, weighs most heavily on people whose income is mostly directed to consumption, those with lower incomes.

Resistance to taxation is quite natural, but it takes on increased importance in the context of the Gulf rentier states. The essence of being a rentier state is that revenue is derived from the rest of the world and redistributed to the national population through government expenditure. The redistribution takes place very unequally, but almost all earners directly or indirectly benefit from it and do not contribute to government revenue. The difficulty of introducing modern forms of taxation is increased by the fact that oil revenue,

albeit with ups and downs, is available, so why should the government set it aside, like Norway does, and tax its own citizens? Developing modern taxation requires a sustained effort over many years; if a justification may be found at times when oil prices are low, it evaporates as soon as they increase. Most importantly, the creation of a modern taxation system is hindered by the lack of democratic legitimation. Even in countries where parliaments are appointed and purely consultative, such as Saudi Arabia, the executive refuses to seek approval for the budget, and expenditure details remain undisclosed. In Kuwait, where the National Assembly is elected but the government does not need to obtain a vote of confidence, parliamentarians have consistently shown no appetite for raising revenue and a strong inclination to defend all existing handouts or even propose new ones.

To the extent that fiscal capability cannot be established overnight, delay in developing this instrument may indeed be unsustainable. This is an issue of political more than economic sustainability, in the sense that the obstacle is in the rentier nature of the state and the unwillingness of the power structure to evolve towards democratic legitimation. But it is also compounded by the lack of a taxable base, because most nationals are employed by the government, and the private sector is overly dependent on cheap expatriate labour. Ishac Diwan's article in this issue discusses this aspect of unsustainability with reference to Saudi Arabia, but his analysis is valid for all GCC countries. Long-term dependence on a constantly rotating army of expatriate workers translates into declining productivity and marginalization of nationals from productive employment.

Thus, sustainability demands that the objective of reducing reliance on

expatriates, which has been official government policy as expressed (e.g. in successive Five Year Development Plans) since at least the early 1980s, finally be pursued with determination. Resistance from the private sector is to be expected and must be overcome.

Increasing productivity, reducing reliance on cheap expatriate labour, and offering opportunities for well-paid jobs to nationals are the key developmental tasks that the private sector needs deliver. Diversification is not a plus if it means that more industries are developed that can only survive if continued access to low-cost expatriate labour is guaranteed. Only projects that can potentially offer employment to nationals are truly sustainable, and existing industries should be pushed to restructure or perish by progressively increasing wages for expatriates until they reach a level that a national would find acceptable.

Eventually, this is also necessary to tackle the issue of growing income and wealth disparities. Gulf societies have a recent past of relative egalitarianism (in international comparison). The oil rent changed that by creating opportunities for vast enrichment which only relatively few were able to grasp. After a phase of significant social mobility, during which rags-to-riches stories did materialize, society appears to have prematurely sclerotized, consolidating the cleavage between the descendants of the original founders of fortunes, to whom all opportunities are open, and the vast majority of the younger generation, whose prospects at best consist of lower middle class status thanks to a government job.

Growing income and wealth disparities may or may not be sustainable. In recent decades numerous countries governed by democratic institutions have become tolerant of greater inequality; growth in emerging



economies (such as China and India) has also been characterized by rapidly increasing inequality. But it might be dangerous to presume that growing inequality will remain politically sustainable forever. Hirschman’s tunnel effect (Hirschman and Rothschild, 1973) may have been at work so far: people left behind still viewing the success of a few as promise that their turn will come. But their turn is not coming, and disillusionment may easily turn to rage.

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SLOWING THE PUMP? WHY GCC ECONOMIES HAVE A DIVERSIFIED BASE BUT REMAIN OVERLY HYDROCARBON- DEPENDENT

Manal Shehabi

According to the dominant discourse, economic diversification in most Gulf Cooperation Council (GCC) countries is almost nonexistent. The economic contraction following the collapse of the oil price in mid-2014 amplified concerns over the unsustainability of the status quo, resulting in renewed calls for economic diversification. These concerns are valid, given the expected decline in hydrocarbon export revenue due to growing domestic energy consumption, slowing global demand for hydrocarbons, high government spending commitments, a lower oil price environment, and the exhaustibility of the resource base. This has given rise to multi-decade ‘visions’, grandiose economic blueprints and wish lists—such as Vision 2040 in Oman, Vision 2035 in Kuwait, and Vision 2030 in Saudi Arabia. Although differing in substance, they all emphasize new economic activities and the private sector as engines of sustainable growth and development in the future of these economies, and call for the GCC states to become centres of excellence in tourism, finance, or other services.

Emphasis on economic diversification is not new; historically it was at the centre of multi-year development plans. Nonetheless, economic overdependence on hydrocarbons persisted. Most economists believe the dominant view in economic literature on the Gulf which advance that the primary reason for the GCC diversification state is the so-called Dutch disease. This phenomenon refer to a boom in natural resource exports leading to significant appreciation of nominal (and real) exchange rates (or inflation in countries with fixed exchange rates), adversely affecting other tradables.

Notwithstanding widespread views that they are undiversified, GCC economies do in fact have a diversified economic base, through their sovereign wealth funds (SWFs) as well as their non-oil sectors. But this base has failed to contribute to export revenue or fiscal diversification, due to structural constraints and economic distortions. On the one hand, diversification has succeeded thanks to an open exchange trade system and openness to expatriate labour with elastic supply. On the other hand, multiple factors have constrained the ability of GCC governments to reduce overdependence on hydrocarbons revenues—including lack of taxation, concentration of capital in the energy industries and abroad in SWFs, widespread oligopolistic structures, dominance of the public sector, and concentration of the local labour force in the public sector. This article illustrates these points in the Kuwaiti context.

Show me the diversification

To varying degrees, the GCC economies’ overdependence on hydrocarbons is evidenced by the fact that their economic indicators, such as gross domestic product (GDP) and net foreign reserves, have tended to closely follow hydrocarbons production and prices.

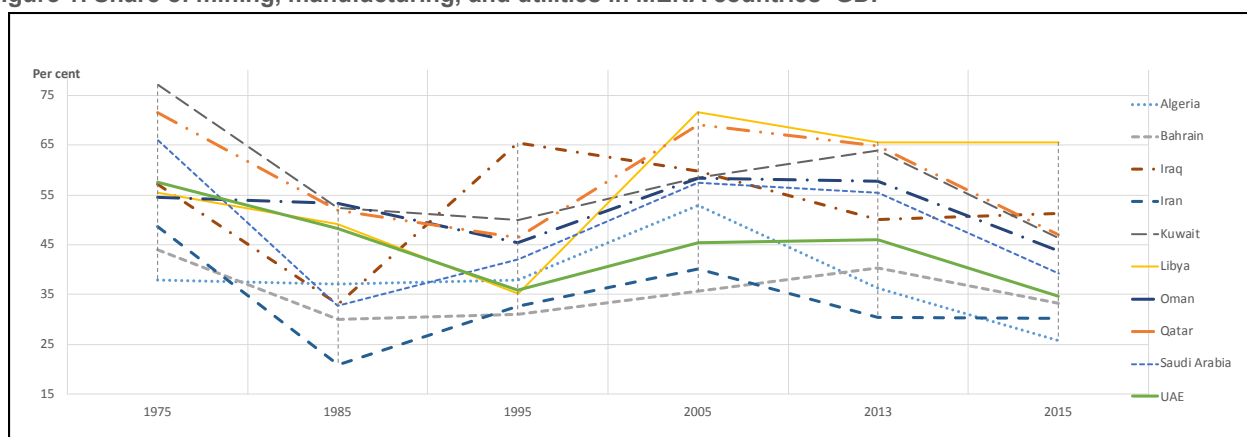
But this overdependence is not due to lack of economic diversification. In fact, the size of the non-energy base has increased over time in all hydrocarbon-exporting Middle East and North Africa (MENA) economies except Libya. Given limited data availability, Figure 1 uses the share of mining, manufacturing, and utilities in GDP as a proxy for the share of the energy sectors (which include crude oil/gas, refining, electricity, and water desalination). The lower this share, the more diversified the economy.

There are two caveats to consider when examining the data in this figure. First, they overestimate the share of the energy sectors because, while refining makes up the bulk of manufacturing in these countries, there is also some limited non-energy-related manufacturing. Second, the data are only indicative. The 2013 figures are a more accurate representation of the state of diversification than those of 2015 because the share of the energy sectors is positively correlated with the oil price. Between 2013 (when the oil price was high) and 2015 (when it had collapsed), there were almost no significant structural changes in any GCC economy, but the share of non-energy increased substantially—from 7 per cent in Bahrain to 18 per cent in Kuwait and Qatar—due to the decline of the value of energy exports coupled with reverse ‘Dutch disease’ dynamics that led to increases in non-energy exports aided by the depreciating exchange rate (a consequence of the collapse of the oil price). Thus, 2015 data overestimate the state of diversification in MENA economies.

Notwithstanding these caveats, in 2013, even the least diversified GCC economies, Kuwait and Qatar, still had non-energy sectors exceeding 35 per cent of GDP. By contrast, in



Figure 1. Share of mining, manufacturing, and utilities in MENA countries' GDP



Source: UN Input Output Tables (2018).

Norway, often considered the exemplary oil-dependent economy, the share of mining, manufacturing, and utilities in GDP was 45 per cent in 1975 and 34 per cent in 2013. This diversified base in the GCC has been aided by an open exchange trade system, savings in the SWFs, and openness to expatriate labour. The flexibility of expatriate labour enables the relatively low-cost free entry and exit of labour into the market, which

helps to cushion the economic effect of oil shocks. The ability to withdraw from the SWFs to cover deficits offer another safety valve.

A closer look at the GCC 2015 national accounts confirms the size of the non-energy sectors as well as their inability to contribute to export or earnings diversification. National accounts typically include non-mining sectors (which they consider as a measure of

diversification) and mining sectors. Within these sectors, they place refining, utilities, and services in the non-mining category, and crude sales and upstream activities in the mining category. Such accounting is misleading because energy-related activities are included in both categories. As such, I recategorized the national accounts data into energy sectors (include crude, mining, refining, electricity, and water desalination) and

Table 1. GCC non-energy sectors, 2014

Country	Share of non-energy sectors (%)		
	In value added	In exports (includes re-exports)	In government revenue
Bahrain^a	60	31	17
Kuwait^b	39	9	9
Oman^c	46	16	21
Qatar^d	68	15	10
Saudi Arabia^e	50	20	12
UAE^f	55	22	40

Notes: The share of the non-energy sectors in value added was calculated as 100 per cent minus the share of the energy sectors. Unless otherwise stated, the share in government revenue was based on data reported by the government and may include income from oil and gas investments; thus, it may be overstated. For United Nations value added data (2018), sectoral data on the share of non-energy in value added were not available in the national accounts, so UN data for mining, manufacturing (including refining), and utilities were used as proxies; therefore, these figures may be underestimated. For Qatar, government revenue excludes income from oil and gas investments. Sources are listed below. For UAE, the share of non-energy exports is for 2016.

Data Sources: ^a For Bahrain: National accounts and budget from Bahrain Open Portal Data (2018); government budget from Bahrain Ministry of Finance (2018); United Nations value added data (2018).

^b For Kuwait: National accounts from Kuwaiti Central Statistical Bureau (2018); government budget from Kuwait Ministry of Finance (2018).

^c For Oman: National accounts from Oman National Centre for Statistics and Information (2018); government budget from Oman Ministry of Finance (2015); United Nations value added data (2018).

^d For Qatar: National accounts from Ministry of Development Planning and Statistics (2018), Staff Concluding Statement for the 2018 Article IV Mission (2018); IMF Qatar Country Report (2013).

^e For Saudi Arabia: National accounts from Saudi General Authority for Statistics (2018); government budget from Saudi Arabia Ministry of Finance (2018).

^f For UAE: United Nations value added data (2018); UAE Annual Economic Report (2016, 2017).



non-energy sectors (everything else). Table 1 details the share of the non-energy sectors in value added, exports, and government budgets in the GCC.

These data reveal the following insights:

- The non-energy sectors contribute a significant part of value added—more than one-third in 2014 in Kuwait and Qatar, and more than one-half in the remaining GCC states. Other oil-dependent economies in the MENA region have similar trends. In 2014, the share of sectors other than energy, manufacturing, and utilities was 52 per cent of gross valued added (at current prices) in Iraq, 68 per cent in Iran, 66 per cent in Algeria, and 34 per cent in Libya (UN, 2018).

- GCC non-energy-sector outputs are mostly non-traded, with limited contribution to exports. Their export also include re-exports, which are not produced locally, and are affected by real exchange rate dynamics and the adjustment valves of an economy. This suggests that the various reforms and development plans have not met their targets of significantly increasing non-energy exports.
- The non-energy sectors make an even smaller contribution to state budgets, partly because they are largely state-owned and/or have negligible tax obligations, while receiving subsidies.

Thus, diversification has progressed in the GCC, but it has contributed little to increasing productive capacity,

diversifying government earnings, or increasing export revenue. The following section explains the reasons for these failures using illustrations from Kuwait, which has a similar economic structure to the other GCC states.

The case of Kuwait

Table shows the key structural elements and sectors of the Kuwaiti economy, as well as their contributions to value added and exports. Kuwait’s non-energy sectors contributed 38.2 per cent of Kuwait’s GDP at factor cost (the same as the share in value added) in 2013. Data from 2013 are used because examining the economy during high oil prices offers a more accurate assessment, and 2013 data are the most recently available prior to 2015.

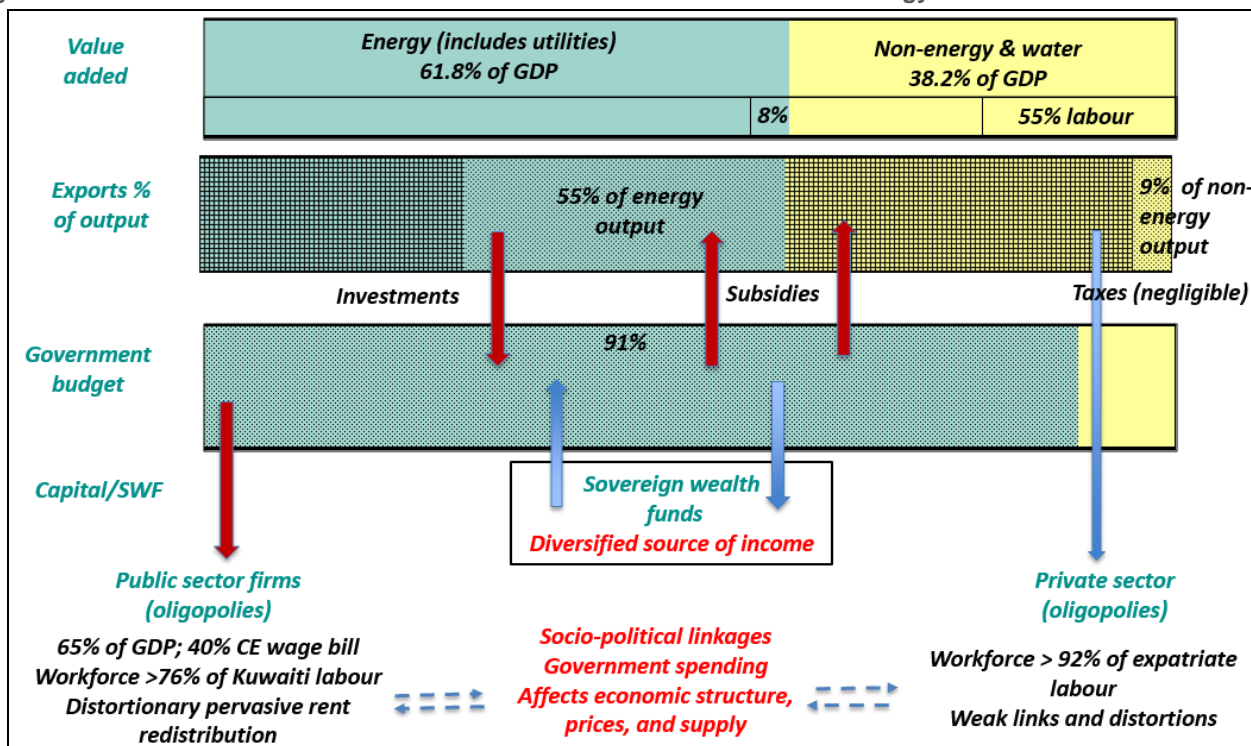
Table 2. Kuwait’s economic structural elements, 2013

Sector	% of GDP ^{FC}	% of total exports	Export % of output	Net exports over output
<i>Energy sectors</i>				
Mining	1.4	0.0	0.0	0.0
Crude oil	48.9	42.1	50.5	50.3
Gas and petro-services	0.9	1.3	50.5	50.3
Oil refining	5.4	38.6	72.6	72.2
Electricity	0.6	0.0	0.0	0.0
Other network services	4.6	4.6	32.3	31.4
<i>Non-energy sectors</i>				
Agriculture	0.3	0.0	1.3	-63.3
Chemicals	1.1	3.4	37.4	-1.7
Light manufacturing	0.8	0.4	4.1	-56.0
Heavy manufacturing	0.8	1.9	8.1	-72.0
Construction	2.2	0.0	0.0	0.0
Transport	3.4	5.7	38.9	14.1
Financial services	7.8	0.7	4.1	-1.3
Other services	21.7	1.2	1.8	-15.6

Note: GDP^{FC} is GDP at factor cost, which is the sum of value added in each industry.
 Source: Shehabi (2017) model database (social accounting matrix (SAM)) constructed by the author for 2013.



Figure 2. Economic and structural constraints on the contribution of the non-energy sectors in Kuwait



Notes: * The blue-green blocks represent the energy sectors, and the yellow blocks the non-energy sectors.
 * In the second row, for energy sectors in blue-green, the dark shaded blocks on the left represent portion of sectoral output used for domestic consumption, and the light shaded blocks on the right represent exported share of output. The same applies for the yellow blocks representing the non-energy sectors.
 * In the third row, the light shaded blue-green block correspond to the exported energy output in the second row.
 * The red and blue arrows represent direction of flow of funds of investments, subsidies, and taxes.
 Source: Author’s representation.

Despite their substantial contribution to value added, the non-energy sectors have failed to reduce Kuwait’s heavy dependence on oil. Their historic inability to create productive capacity or diversified earnings is due to structural constraints and economic distortions such as those outlined below.

- **Targeting nontradables:** Non-energy output consists mostly of nontradables, with only 9 per cent of it exported, a meagre 13 per cent of total exports (Figure 2). The energy sectors export only 55 per cent of their output but contribute 87 per cent of total exports, which generate approximately 91 per cent of the government’s revenue. In sum, despite their sizable share of the economy, the non-energy sectors contribute little to earning diversification.

- **Fiscal structure:** The non-energy sectors’ contribution to government revenue is negligible, because they pay almost no taxes but receive subsidies. Therefore, they have no effect on fiscal diversification.
- **Captive capital:** Most of the economy’s capital is locked, largely in capital-intensive public-owned energy industries. As shown in Shehabi (2019a), labour contributes only 8 per cent of the energy sectors’ value added. Non-energy sectors, by contrast, are more labour intensive, with labour contributing 55 per cent of their value added. Further, government capital surplus (owing to oil exports) is funnelled mostly to investments abroad in the SWFs (and some foreign aid).

These factors limit capital mobility and the investment needed to expand the non-energy sectors.

Figure illustrates the contribution of non-energy sectors to the economy and the structural constraints and economic distortions.

In addition to its dependence on hydrocarbons, Kuwait’s economy is constrained by other structural rigidities, as described below.

- **Public-sector dominance:** In 2014, the public sector generated over 65 per cent of GDP, compared with a private sector share that has ranged between 21 per cent (1989) and 41 per cent (2010). The public sector contributes to two-thirds of total capital formation. It is also the employer of choice for



Kuwaiti workers; it employs the majority of them, and they make up the majority of public-sector employees. Despite privatization efforts, Kuwait's private sector remains small, and the public sector continues to dominate the economy in various industries, including petroleum. This dominance of the public sector crowds out the private sector and minimizes innovation.

- Public-sector employment policies:** Two factors contribute to the fiscal rigidity that limits the scope and flexibility of public expenditures. First is the size of current expenditure, which constitutes 80 per cent of government expenditure; half of it funds the public-sector wage bill. Second is the size of transfers and subsidies to households and firms. In 2014, these represented more than half of the government's total spending and included pervasive and conspicuously high energy subsidies estimated by the EIA at a 70 per cent subsidization rate in 2015 (the fifth highest globally and contributing to Kuwait's rank as the world's sixth highest energy consumer per capita). Despite reforming gasoline prices and electricity prices for expatriates and for commercial use, these rigidities persist and any attempt to reduce them faces severe political opposition. These transfers have serious negative implications for diversification because they are distortionary, enabling the public sector to affect supply and prices and public expenditure to alter sectoral structures.

- The labour market:** The non-energy sectors include some public firms and all private firms, which hire predominantly expatriate labour. There are effectively two separate labour markets. Expatriates comprise 83 per cent of Kuwait's labour force; most are employed in the private sector at lower wages and on flexible labour contracts linked to employers, through a strict employer-sponsorship system called *kafāla*. Access to expatriate labour offers large efficiency gains and an economic cushion against oil price shocks (Shehabi, 2017), so there is little incentive to employ local labour. Kuwaiti labour is largely concentrated in the public sector and enjoys guaranteed jobs with secured, long-term (inflexible) contracts. Further, the bloated public sector (which employs 77 per cent of Kuwaitis) prioritizes indigenous employment and offers salaries exceeding those in the private sector for similar levels of education and technical training. This offers limited incentives for locals to move to the private sector, even with the wage equalization mechanisms provided by Kuwaitization policies (Shehabi, 2018). Therefore, the non-energy sectors offer little contribution to local employment growth.
- The SWFs:** Kuwait has two SWFs managed by the Kuwait Investment Authority (KIA), one fund for macro-stabilization and fiscal rebalancing, and a long-term intergenerational fund established as an alternative source of government revenue to oil. The KIA is an important institutional and financial feature

of the Kuwaiti economy, acting as a financing alternative during oil revenue shortages and a means to smooth out short-run governmental expenditures. The non-energy sectors do not contribute to SWF investments. Large investments in the SWFs, estimated at \$524 billion (SWF Institute, n.d.), locks a large part of the budget surplus abroad. This funds' value estimate are more than three times Kuwait's record-high GDP in 2013 and more than five times that year's export revenues. Investing in the KIA is a deliberate policy choice to offer a diversified alternative revenue source to sectoral diversification in the economy. The success of the SWFs in offering a fiscal cushion diverts resources away from private-sector growth and diversification.

- Dominance of oligopolistic firms:** Oligopolies are pervasive in Kuwait, as evidenced by the high concentration of capital and revenue within a few companies across all industries (Shehabi, 2017). It is not surprising that the high levels of minimum efficient scale delivered by modern technology and the smallness of Kuwait (and similar GCC economies) should lead to the emergence of oligopolies or monopolies, particularly in protected services. While it is natural for all economies to have oligopolies, short-run oligopoly rent is destroyed in the long run by competition-induced innovation and limit "creative destruction" (the process by which new innovation destroys rents of existing monopolies, revolutionizing the economic structure from within). This is problematic to the extent that



oligopolies distort markets and prices and their sustained rents engender strategic behaviours that detract from growth-enhancing innovation.

Importantly to Kuwait and other small economies with similarly high specialization, oligopolies exhibit distortionary behaviour that is exacerbated by high subsidies, because subsidizing the negatively impacted industries enables them to be profitable at their existing levels of investment and innovation, thus reducing their economic incentives to innovate and expand. Government-dominated industries are, by definition, monopolies and oligopolies. Government reform plans to increase industrial competitiveness and expand the private sector have had limited success, largely due to strong public and parliamentary opposition.

These constraints and distortions, rather than the often-cited ‘Dutch disease’, are the primary causes of the weak role of the non-energy sectors in the Kuwaiti economy.

These arguments have been supported by simulations (Shehabi, 2017; Shehabi 2019a) using a general equilibrium model of the Kuwaiti economy that embodies the country’s unique features and represents oligopoly and its regulation. In an analysis that is the first to feature diversification as a central theme of energy subsidy reform in the MENA context, Shehabi (2019a) has shown that energy subsidy reform minimally improves Kuwait’s non-oil export base due to real exchange rate dynamics and the adjustment valves (namely expatriate labour exit and the SWFs’ funds which offer a cushion to the economy following economic shocks, like low oil prices). Reforming

energy subsidies in an environment of low oil prices has a limited effect on diversification to the extent that energy subsidy reform is contractionary for the overall economy. Yet this contraction reduces some oligopoly markups (profits earned above producer average cost), which translates to overall improvement in the economy. This, coupled with the depreciating real exchange rate, drives expansion in the non-energy exporting sectors, but to a fairly limited extent. Reverse Dutch disease dynamics are thus very limited due to the idiosyncrasies and constraints of the Kuwaiti economy. The large share of oligopolies in the domestic market, low elasticity of substitution between imports and locally produced goods, and share of imports in intermediate inputs of non-energy tradables limit expansion in non-oil sectors required to achieve meaningful non-energy diversification.

What the economy thus needs is not more diversification, but better diversification that can help diversify earnings and reduce the economy’s exposure to oil price and demand shocks. This requires relaxing some of the constraints and distortions described above and increasing economic incentives for innovation, labour mobility, exporting non-energy output, and sectoral growth. Shehabi (2019a; 2019b) examines some hypothetical yet potentially politically viable policy options (because they are already called for in existing policies) that would relax some economic constraints. These studies find that competition and productivity shocks would achieve diversification effects, which would be further extended by the movement of Kuwaiti labour from the public to the private sector. These results confirm the argument put forth in this article that the state of diversification in Kuwait is due largely to economic and structural constraints and distortions, and that relaxing them

is necessary to achieving better diversification that will be meaningful to the long-term economic sustainability of the country.

Policy implications

GCC economies have a diversified economic base, but this base has made only minimal contributions to earnings, exports, fiscal diversification, and therefore sustainability, due to the structural factors described in this article. What the GCC economies need, thus, is better economic diversification that is more meaningful and can reduce overdependence on hydrocarbons.

Trade-offs arise from those constraints and distortions—most notably between fiscal stabilization on the one hand and diversification, industrial expansion, welfare, cost of living, and labour market stability on the other. A distinct trade-off exists between efficiency gains from expatriate labour and the expansion of the local labour force in the private sector.

These factors have serious implications for energy and economic policy in the GCC, which since mid-2014 has focused predominantly on achieving fiscal sustainability and economic diversification away from hydrocarbons (as well as energy mix diversification, which is not addressed in this article). Achieving both fiscal reform and diversification is an ambitious goal and is hindered by these countries’ economic and political constraints and distortions. Yet with appropriate incentives, the ‘reverse Dutch disease’ effect could be considerably stronger, without becoming a panacea. For instance, an increase in overall productivity levels would translate to increased diversification and non-energy exports, as would the increased mobility of capital and labour. Diversification can be further enhanced through efficiency-enhancing structural changes.



In developing petro-economies with pervasive oligopolies, like those of the GCC, microeconomic reform (such as competition reform) can be another channel through which to achieve efficiency and drive the diversification effects of energy and fiscal subsidy reforms.

Finally, while achieving better economic diversification requires reducing distortions and relaxing some of the constraints described in this article, this would be a politically complex process, as some of these distortions (such as high subsidies) have historically contributed to political stability. Therefore, to achieve meaningful diversification, economic reform ought to be implemented as part of a larger reform package that also includes social, energy, environmental, cultural, and institutional reforms.

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ECONOMIC DIVERSIFICATION AND SUSTAINABLE DEVELOPMENT OF GULF COOPERATION COUNCIL COUNTRIES

Joerg Beutel

For decades, most countries' exports and imports have grown more rapidly than domestic production. This is a strong indication that, besides foreign trade in final products, trade in intermediates is also becoming increasingly important. Globalization in production is changing the way in which nations interact, and any analysis of diversification should therefore also encompass the worldwide exchange of intermediates in production. For this reason, an input-output approach, which accounts for the role of intermediates, is more appropriate for any analysis of diversification than a traditional approach based purely on macroeconomic data.

This article analyses economic diversification in Gulf Cooperation Council (GCC) countries using data from extended input-output tables to compare the performance of these economies with that of a reference case, Norway, which is considered to have successfully diversified its economy despite having a large oil resource base. It also assesses these countries' relative progress on sustainable development using a new measure, adjusted net savings, which measures the true rate of savings in an economy after accounting for investments in physical and human capital, depletion of natural resources, and damage from environmental pollution. This view of sustainable development requires that the country pass on an aggregate stock of physical, human, and natural capital to the next generation that is not smaller than the one that currently exists. This requires that the loss of depleting resources be offset by increasing the stock of physical and human capital. The article concludes that GCC countries have, contrary to expectation, collectively performed relatively well on diversification, but their performance on sustainable development varies.

Trends in production, foreign trade, and GDP

If exports and imports are growing faster than GDP, the shares of exports and imports in GDP are also increasing. Furthermore, if net exports grow faster than GDP, the purchasing power of the nation is increasing, and imports also tend to grow faster than GDP. Among the 10 largest economies of the world (G10) the most striking examples of an increase of the share of exports in GDP between 1995 and 2016 are Germany (24.1 per cent), India (7.9 per cent), Japan (7.2 per cent), France (6.9 per cent), Italy (5.1 per cent), and Brazil (5.1 per cent). Substantial increases in the share of imports in GDP occurred for Germany

(16.6 per cent), France (10.3 per cent), India (8.2 per cent), Japan (7.5 per cent), and Italy (5.4 per cent). For the G10, the increase of the export share in GDP during 1995–2016 was 4.7 per cent; for the import share in GDP it was 5.2 per cent.

In the GCC countries during 1995–2016, the share of exports in GDP increased by 12.9 per cent, while the share of imports in GDP increased by 14.0 per cent. The most rapid increase of the export share was experienced by the United Arab Emirates (UAE) (57.9 per cent) and Oman (14.0 per cent). Similar results were observed for the import share in GDP for UAE (41.3 per cent) and Oman (17.0 per cent).

Intermediate consumption, value added, and output

The numbers above suggest that during the last 20 years, economic globalization has increased worldwide interdependencies in production, leading to the intermediate consumption of goods and services becoming a key element in the intensification of economic diversification. If the consumption of intermediate products is growing above its GDP growth rate, an economy is moving towards more complex participation in interindustrial production. At present, the challenge for many countries is to participate successfully in the international value-added chain of production. In 1995–2011, the share of intermediates in total output for the G10 countries increased by 5.9 per cent—in other words, their production processes became more complex and more interdependent. During the same period, the share of intermediates in total output increased in China by 6.7 per cent and declined by 0.4 per cent in the United States.

For the GCC countries combined, the share of intermediates and gross value added in total output was more or less constant during the last 20 years.



However, individual countries' performances have been mixed. While intermediates increased substantially in Bahrain (10.6 per cent), Oman (7.7 per cent), Kuwait (5.4 per cent), and the UAE (4.5 per cent), they declined in Saudi Arabia by 4.1 per cent.

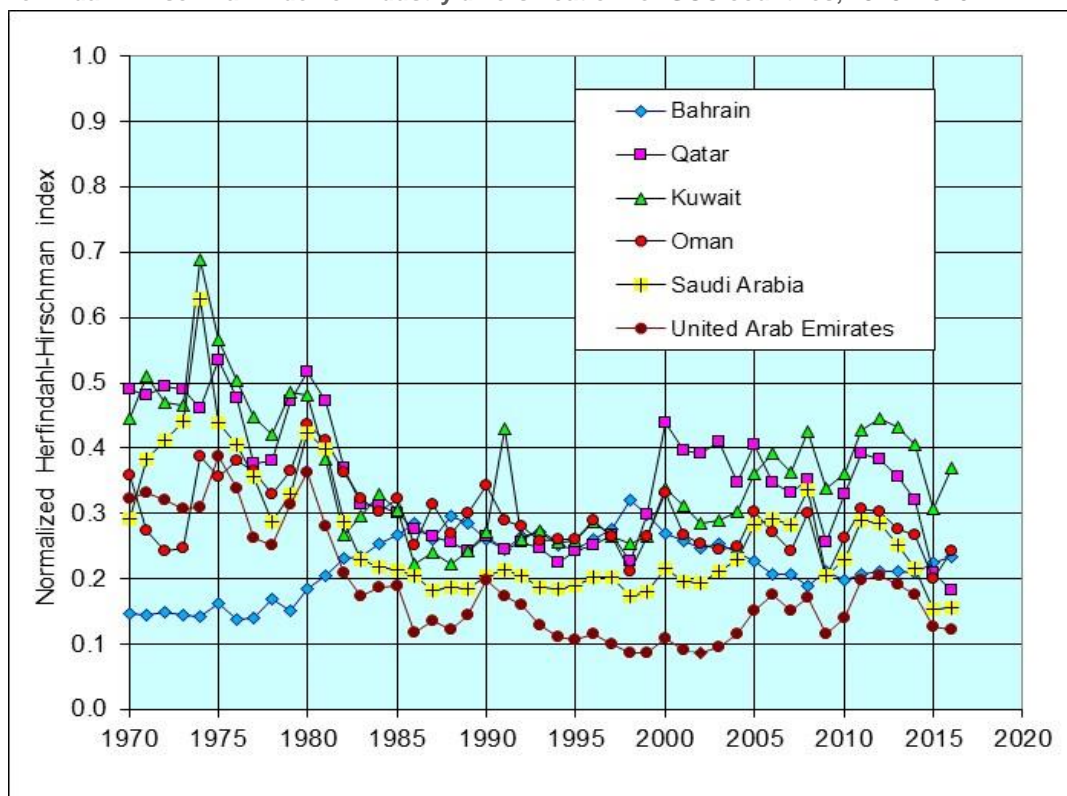
Economic diversification of the GCC countries in international comparison

Economic diversification means the diversification of exports, imports, and domestic production away from extreme dependence on a single dominant industry or a few natural-resource-based products, as well as a change toward increased complexity and quality of output (Beutel, 2012).

The Herfindahl-Hirschman Index, the most widely used measure of market concentration and diversification, is the sum of squared shares of the various industries in gross value added. In the normalized form, the index ranges from 0 to 1; lower scores indicate greater diversification (more different industries with shares in value added). The figure above plots the index for recent decades for the GCC countries.

Starting from the first oil boom in 1974 and the second oil boom in 1978, the index fell steadily until 1998, indicating successful diversification. However, at the end of the last century, the recovery of oil prices after a long period of

Herfindahl-Hirschman Index of industry diversification for GCC countries, 1970–2016



Source: Data from National Accounts Estimates of Main Aggregates—United Nations Statistics Division. Note: Index values were calculated based on data from the following seven industries: agriculture, hunting, forestry and fishing; mining and utilities; manufacturing; construction; wholesale and retail trade, restaurants and hotels; transport, storage, and communication; and other activities.

relatively low prices brought new turbulence in the trend of diversification in most GCC countries.

New assessment of GCC countries with input-output data

The best way to measure the relationship between intermediate consumption, gross value added, and final demand is through the use of input-output tables, which are derived from supply and use tables that are an integral part of the System of National accounts (Beutel, 2017).

An input-output table is a matrix with detailed information on the production of goods and services in an economy. It details the intermediate and final uses of domestic and imported goods and services, as well as net taxes on products and industries' gross value added. Table columns show required inputs and corresponding cost

structures of industries and final demand categories (consumption, investment, exports), while rows show the sales or output structure for goods and services and components of value added (compensation of employees, net taxes on production, consumption of fixed capital, net operating surplus). Extended input-output tables can provide additional information on investment, capital, and labour, as well as energy, emissions, natural resources, waste, sewage, and water.

An example of an extended input-output table is shown in [Table 1](#). Rows 1–16 represent a traditional input-output table and rows 17–50 represent an extension.

Extended input-output tables provide rich data for studying sustainable development and the impact of environmental policies.



Traditional input-output indicators for GCC countries

Only a few GCC countries compile and publish national supply, use, and input-output tables for their national accounts. This article focuses on input-output tables for Saudi Arabia and Kuwait, with Norway serving as the reference country. The input-output data were extracted from the input-output tables of the OECD (OECD, 2018). The new Handbook of Supply-Use and Input-Output Tables with Extensions and Applications of the United Nations (United Nations, 2018) gives guidance on the compilation and main applications.

The data in [Table 2](#) reveal that the shares of intermediate consumption of products and gross value added in total output did not change much in Saudi Arabia and Norway during 2005–2011. The shares of intermediates in total output were significantly lower in Saudi Arabia than in Norway (31 vs. 46 per cent of output), as were the shares of imported intermediates (5 vs. 10 per cent).

Direct input coefficients reflect the direct input requirements of products for a specific industry, while cumulative input coefficients represent both direct and indirect input requirements of products at all stages of production. Cumulative input coefficients are often used to identify an industry’s backward linkages. The column totals of the direct input coefficients and the Leontief Inverse input coefficients reflect the intensity of backward linkages. The row totals of the direct output coefficients and the Ghosh Inverse output coefficients show the intensity of forward linkages.

On average Saudi Arabia reached 95 per cent of the Leontief Inverse for domestic products of the reference country, Norway. In other words, by 2011 Saudi Arabia had reached an international level of industrial diversification. If imported intermediate

inputs are included, the level of diversification appears to have reached 86 per cent of Norway’s.

A similar comparison can be made for the input-output data of Kuwait and Norway – shown in [Table 3](#).

Data for 2005–2013 show a clear trend in the use of domestic intermediates in Kuwait. In 2013 Kuwait (with 31.4 per cent of output) had almost reached the level of Norway (with 32.8 per cent of output). However, the share of imported intermediate inputs in Kuwait (5.5 per cent) was much lower than the share in Norway (11.1 per cent). The share of gross value added in output for Kuwait (64.8 per cent) was about 10 per cent higher than for Norway (54.6 per cent), indicating the potential for more diversification.

The backward linkages for domestic inputs in Kuwait reached 95.8 per cent of Norway’s. They even exceeded Norway’s (108.8 per cent) if imported inputs are included. Thus, in Kuwait, the potential to induce more diversification should not be based on a general policy of promoting more import substitution but rather on a specific policy of encouraging more imports of intermediates.

Primary Diversity Index

Economic diversity has often been promoted as a means to achieve economic stability and growth. Some empirical studies have related higher levels of diversity to both economic stability and overall levels of economic activity. Diversity measures used in these studies have tended to be narrow, usually emphasizing the distribution of employment across industries. Such measures are unsatisfactory because they do not capture inter-industrial linkages.

An alternative approach to measuring diversity, based on the technical coefficients matrix of an input-output model, was developed by Wagner and Deller (Wagner, 1998), who showed

that higher levels of diversification within the theoretical construct of input-output are associated with higher levels of stability. Their Primary Diversity Measure (PDM) emphasizes inter-industry relations and provides the best way to evaluate economic diversification. It is derived by multiplying values assigned to three variables:

- Relative size of the economy—number of indigenous industries
- Density of the economy—number of non-zero elements in the Leontief matrix, indicating the diversity of transactions
- Condition number of the Leontief matrix—indicator of inter-industry linkages.

The Primary Diversity Measure (PDM) was applied by Al-Kawaz (2008) for Kuwait in 2000 and by Beutel (2018) for Kuwait and Saudi Arabia during 1995–2011.

This is illustrated in [Table 4](#).

Saudi Arabia’s PDI is consistently lower than Norway’s, but the magnitude of difference has decreased. In 1995, Saudi Arabia’s PDI was 91.1 per cent of Norway’s, but by 2011 it had increased to 96.2 per cent. Thus, by 2011 Saudi Arabia almost reached Norway’s diversity level—a considerable achievement of the Saudi development policy.

Sustainable development: Adjusted net national income and savings

Since a long time, the World Bank is engaged in measuring sustainable development of nations (World Bank, 2001). The long-term strategy for oil-producing countries should be to increase the gross national income per capita and transform the non-renewable natural capital into other forms of capital like machinery, buildings, and human capital (Beutel, 2013).



In the World Bank’s World Development Indicators (World Bank, 2018) we find two prominent indicators for sustainable economic development: ‘Adjusted net national income’ and ‘Adjusted net savings’.

‘Adjusted net national income’ is estimated by subtracting from gross national income the consumption of fixed capital and depletion of natural resources. The consumption of fixed capital reflects the decline in man-made physical capital through retirement of buildings, machinery, transport equipment, and the like; while the depletion of natural resources measures the decline in non-renewable natural resources through extraction.

Gross domestic product (GDP)
 + Net income from abroad
 = Gross national income (GNI)
 Consumption of fixed capital
 = Net national income
 - Natural resources depletion
 = Adjusted net national income

The consumption of fixed capital is estimated as part of the national accounts. On the depletion of natural resources, the World Bank provides valuable information for 10 minerals, 4 energy sources, and net forest depletion.

‘Adjusted net savings’ is a national accounting aggregate designed to measure changes in assets including natural and human capital. The gross stock of natural capital (natural resources), physical capital (buildings, machinery, transport equipment), and human capital (education, skills, knowledge) is growing if a nation’s adjusted net savings are positive.

There is an intrinsic link between change in the wealth of a nation and the sustainability of its development path. If genuine (adjusted) savings are negative at a given point in time, then

welfare in the future will be less than current welfare. Therefore, adjusted net savings can be regarded as a sustainability indicator.

The World Bank calculates adjusted net national savings as follows:

Gross national savings
 - Consumption of fixed capital
 = Net savings
 + Education expenditure
 - Energy depletion
 - Mineral depletion
 - Net forest depletion
 - Carbon dioxide emissions damage
 - Particulate emissions damage
 = Adjusted net savings (genuine savings)

The calculation of adjusted net national savings begins with gross national savings, calculated as gross national income minus total consumption plus net transfers from abroad. Deducting consumption of fixed capital from gross national savings, we arrive at net national savings. Finally, education expenditure (considered as investment into human capital) is added, and depletion of natural resources and damage from pollution are deducted.

The World Bank adds all current operating expenditures for education to net savings as a gross investment in human capital. I believe that it would also be appropriate to deduct the consumption of human capital, as is done for the consumption of physical capital. Consumption of fixed capital reflects the value of the retired physical capital. The pensions of persons who worked in the education system could be regarded as consumption of human capital. In this case, consumption of human capital corresponds to the costs for the retirement of personnel in education.

An economy is sustainable if it saves more than the depreciation on its man-made and natural capital—in other words, if its net national savings measurement is positive. [Table 5](#) shows an assessment of all GCC countries and the reference country, Norway.

In the comparison of Norway with GCC countries, Norway had the highest adjusted national income per capita (\$78,515) and adjusted net national savings per capita (\$22,363). Among GCC countries, Qatar had the highest adjusted national income per capita (\$67,443), followed by UAE (\$38,670) and Kuwait (\$37,781). Qatar also had the highest adjusted net national savings per capita (\$34,570), followed by Kuwait (\$13,421).

Among the GCC countries only Oman (\$-1,052) recorded in 2014 negative adjusted savings, and its combined stock of man-made capital and natural capital declined. This is consistent with the lowest level of adjusted net national income per capita (\$10,556).

[Table 6](#) and [Table 7](#) look in detail at the performance of Kuwait and Saudi Arabia from 1995 to 2015. Despite substantial depletion of natural resources, Kuwait’s adjusted net national savings as a percentage of gross national income, were very high during 2000–2014. This is supported by relatively low recent rates of both private and government consumption. Due to substantial net income from abroad, gross national income was larger than GDP throughout this period.

Saudi Arabia has significant net income from abroad, low consumption of fixed capital, moderate natural resource depletion, and the highest expenditures for education of any GCC country. Since 2005, adjusted net savings have been in the range of 20–30 per cent of gross national income—exceeding that of the reference country, Norway.



After a recent change in methodology, the World Bank's World Development Indicators estimated energy depletion as the ratio of the value of the stock of energy resources to the remaining reserve lifetime (capped at 25 years), covering coal, crude oil, and natural gas. The results for 2005 are quite different from the previous ones in the Little Green Data Book (World Bank, 2006) for the GCC countries. This significant revision brought about a sudden, and debatable, improvement in the estimate of adjusted savings for the GCC.

Conclusion

Perhaps contrary to widely held opinions, the economic diversification of GCC countries is well underway. In many ways, these countries are approaching the diversification levels of the reference country, Norway. The test for sustainable development of GCC countries for 1995–2015 showed positive results for most. In 2014, Qatar and Kuwait achieved high rates of adjusted net national savings per person; Qatar even surpassed Norway. Bahrain and Saudi Arabia realized small positive rates. Oman was the only GCC country for which the test yielded a negative result. Throughout 1995–2015, Bahrain, Kuwait, Qatar, and Saudi Arabia had positive rates of adjusted net savings, whereas for Oman the rate was only positive in 2012.

A full implementation of the input-output approach will only be possible if supply and use tables become available for all GCC countries that are comparable, have the same number of products and industries, and use the same classification of the System of National Accounts 2008 (United Nations, 2009). At the moment, such tables are only available for Kuwait and Saudi Arabia. The national statistical offices of the GCC countries should be encouraged to compile such tables annually.

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THE POLITICS OF DIVERSIFICATION IN THE MIDDLE EAST

Adeel Malik

The failure of Arab development is multifaceted and manifests across the economic, political, and geopolitical arenas. Over the last three decades, three profound shifts have marked the global political economy. The first, often dubbed the third wave of democratization, is a gradual opening of the political system to more representative forms of government. The second is successful economic diversification in several emerging economies in Asia, Africa, and Latin America. The third is the growing prominence of intra-regional trade by developing countries through their active participation in regional trade initiatives. All of these shifts have bypassed the Middle East.

Judged by any of the above metrics, the region has lagged behind, stagnated, or even regressed. With the largest proportion of autocracies, it is one of the few world regions that remains an outlier to the third wave of democratization. On the economic front, it remains mired in primary commodity dependence while many of its comparators have diversified their export structures. And, despite numerous efforts to promote it, regional trade remains hopelessly inadequate, hovering around 9–10 per cent of total trade for the last four decades.

The region's failure in these three overlapping domains reveals the paradox of Arab underdevelopment, and deserves an explanation that incorporates the economic, political, and geopolitical aspects of development. Consider its failed attempts at economic diversification. Every resource-rich country in the region has made tall promises to

diversify its economy away from excessive dependence on oil and gas. Yet, if anything, the region's reliance on hydrocarbons has increased over time. What explains this gap between intentions and outcomes?

A political challenge

To understand this, one must first acknowledge that the core challenge of economic diversification is not technical but political. Clearly, the challenge of diversification is deeper than simply learning the right lessons from successful experiences in Norway, Malaysia, or Botswana. After all, if the recipes for diversification are so widely known, why have Arab countries not seriously pursued them?

To diversify their economies, resource-rich countries need to develop the non-oil sector, which entails, among other things, producing a greater number and variety of goods—including those at the higher end of the value chain that involve more complex forms of production. The problem is that the effects of doing so are rarely politically neutral. Political scientists have long recognized that structural change in the economy is usually accompanied by new forms of political contestation. New sources of income breed new constituencies, since economic power can easily translate into political power.

For this one needs to look no further than Turkey, whose recent political transition is undergirded by fundamental economic changes. The appeal of Turkey's Justice and Development Party is based, not just on its populist narrative, but also on the material interests of a constituency empowered by Turkey's vibrant economy. In the Arab milieu, where the overriding concern of rulers is to separate the economy from polity, economic diversification carries genuine political risks. With a long legacy of centralized rule, dating back to the Mamluk era, Arab regimes rest



on two pillars: patronage and control. Such a political order runs counter to the logic of a dynamic economy that requires cultivation of dense economic linkages among various parts of the supply chain. There is a clear danger that such vibrant economic links can serve as the basis for horizontal cooperation.

In this context, it is hardly surprising that resource-rich Arab economies have failed to rise to the challenge of diversification. These economies are doubly deprived in this regard, suffering from the burdens of both history and oil. Whatever weak constituency of private production was inherited by these countries was further weakened after the discovery of oil. Even where rulers were more dependent on merchants prior to the discovery of oil—such as Kuwait—oil tied down the merchant class in state contracts and other forms of patronage. While the private sector has shown greater dynamism in Gulf countries, it still remains structurally dependent on the state.

Diversification is further hindered by macroeconomic challenges that oil-rich economies face by virtue of their exposure to commodity price cycles. Pro-cyclical fiscal policy, a universal feature of resource-rich Arab economies, means that oil cycles are accompanied by budgetary cycles that make planning for long-term investment more difficult. Counter-cyclical fiscal policies, which require that countries spend less in periods of higher oil prices, are politically difficult to implement. The underlying political settlement in these countries gives rise to extensive and sticky distributive claims in the form of salaries, subsidies, and defence spending.

Oil-rich economies also find it difficult to build a productive regime for competitive diversification since the dominance of the oil sector is likely to lead to exchange rate appreciation,

which prices their non-oil exports out of global markets. The overvalued exchange is also favoured by the non-tradeable sector, which is strong and pervasive throughout the region. Historically, economic exchange in the Middle East has been managed by importers and distributors who depend on simple arbitrage opportunities and prefer a fixed and overvalued exchange rate.

These political roadblocks to diversification are difficult to bypass in the midst of multiple development traps. The region's resource-rich economies have few institutional shock-absorbers to mitigate the effect of global price shocks. The same factors that are needed to cope with oil price volatility are also needed for diversification. Diversification is not impossible in these economies, but attempts at it are selective, and often take forms that are politically more acceptable to local elites. In the United Arab Emirates, Bahrain, Oman and parts of North Africa, liberalization of the financial sector has provided such a politically safe avenue for diversification. It has offered lucrative brokerage opportunities for state elites who, through carefully brokered partnerships with foreign banks, have derived additional rents.

Two additional factors make financial liberalization a politically palatable form of diversification. First, the bulk of private-sector credit extended by the financial sector is earmarked for real estate. Second, land is principally owned by the state. This means that even when the financial sector increases its lending to the private sector it is unlikely to give rise to independent forms of accumulation that might threaten the political order.

The political challenges of diversification are by no means limited to the region's oil-exporting nations. Even resource-scarce countries face

similar constraints at varying intensities. Consider Morocco and Tunisia, the two countries that have had some success in developing the private sector. Although export structures in both countries are less concentrated than in other Middle Eastern and North African (MENA) countries, exports have expanded mostly along the intensive rather than extensive margin—relying mostly on existing export relationships rather than establishing new products and trading partners. Additionally, in Tunisia, policy has traditionally segmented the offshore sector, which is mainly export-oriented, from the onshore sector, oriented towards domestic markets. Economic activity also remains confined to a closed circle that protects its privilege by virtue of its proximity to state elites. Such systematic undermining of market competition serves a larger political purpose, since it provides rents needed to solidify elite coalitions in countries where oil rents are either absent or scarce. But while these market-generated rents support the prevailing authoritarian order, the resulting crony capitalism undermines productive capacity. It discourages genuine economic diversification, which requires a level playing field with low barriers to entry and mobility.

This pattern of economic control is shared by other states in the region, including Lebanon, where monopoly concessions have long been used as a principal means of distributing privilege. When pressed for reform, MENA countries have often responded by pursuing trade liberalization selectively in ways that protect elite interests. In Egypt, for example, while average tariffs have fallen since the mid-1990s, they have been applied more broadly, and sectors dominated by elites with military or political connections have continued to benefit from relatively high tariff protection. Similar patterns occur in non-tariff barriers (which are more



discretionary and non-transparent than tariff barriers), for example in Tunisia.

In summary, Middle Eastern countries' difficulties in diversifying their economies probably have more to do with politics than with weaknesses in technical planning or implementation.

Successful diversification: Botswana, Malaysia, and Iran

This primacy of politics is not exclusive to the Middle East, but is also relevant for understanding successful diversification experiences around the globe. Often, it is not good policy alone that explains successful diversification. An enabling political framework remains a common denominator in all such experiments. Botswana's experience underscores the role of stable political coalitions and favourable initial and external conditions. At independence, Botswana inherited multiple constituencies with divergent economic interests, political competition and stable coalitions, and a favourable external environment. Botswana's membership in the South African Customs Union encouraged sensible macroeconomic reform. All these factors helped protect the interests of nonresource sectors.

In Malaysia at independence, the Chinese community controlled the Malaysian private sector and counterbalanced any tendency for the natural resource sector to grow at the expense of the private sector. In the political domain, the consociational agreement between the ethnic Malay and Chinese communities fostered a system of power sharing that protected the economic interests of Chinese businessmen, to whom bad macroeconomic policy—especially an overvalued exchange rate—was politically unacceptable and would have been both bad policy and bad politics. The regional trade circuit also created positive spill-overs that supported private-sector development.

Closer to home, the Iranian experience provides similar lessons. Iran has a far more diversified economy than its oil-rich Arab neighbours. And, despite the failure of state industrialization in 1970s, its economic landscape appears less barren than that of many of its regional comparators. While the country's differential economic structure might be explained by a complex array of factors, it is difficult to understand the Iranian experience without considering the role diverse economic interests have historically played in shaping the domestic political economy. Iran's bazaar economy is famed for its political and economic resilience. Apart from inheriting a strong productive constituency, the country's geopolitical isolation since the late 1970s has left few options for its elites other than to look beyond oil. Recent evidence shows that Iranian exports were, for the most part, resilient to international sanctions (Haider, 2017). Not only was Iran able to deflect its exports away from the sanctions regime, but it also managed to diversify its trading partners. It has also broached, even if briefly, the politically sensitive reform of fuel subsidies. External pressures and the changing domestic political economy have thus both pushed Iran towards exploring alternative economic options.

Prerequisites for successful diversification

Clearly, each case is different and must be analysed on its own merit. But politics provides a common thread through these accounts. And this is where MENA countries are especially challenged: Most did not inherit strong and diverse economic constituencies that could have gained a political voice after independence and counterbalanced the dominance of oil. Regional conflict and instability have also impeded diversification. The Middle East thus lacked all three factors that facilitated economic

diversification in other countries: strong political coalitions, diverse economic constituencies, and positive neighbourhood effects.

Given this challenging legacy, any real hope for diversification will depend on three factors: concessions from political elites that make room for a robust private sector, regional economic cooperation, and geopolitical choices, including by influential actors from outside the region, that do not sacrifice long-term stability and development for the sake of short-term strategic advantage.

Strengthening the non-elite private sector

Successful diversification requires a new political arrangement under which elites concede greater space to the private sector.

Given the primacy of the political, the debate on diversification must begin with a discussion of elite incentives and political concessions. What concessions are needed from the ruling elite, and what will persuade them to surrender their control of the economy and the associated rents? Perhaps they need to be compensated for the loss of rents from a levelling of the economic playing field. After all, new growth strategies in emerging markets are built on a happy (even if fragile) coexistence of economics and politics.

The Chinese example illustrates how economic reform can be aligned with the interests of political elites. Beyond that oft-cited example, Africa's recent success stories confirm the importance of elite incentives. Ethiopia's recent economic transformation has made it one of the world's 10 fastest-growing economies. Central to this has been the role of public investment in infrastructure and public enterprises, and the changing political orientation of state elites. The ruling party set up its own enterprises supported by



specialized endowments geared towards promoting investment in underdeveloped regions. Although this model of party capitalism poses serious questions about market competition, it shows how elites tend to favour an expansion of the economic pie when they are among its lead beneficiaries. This is a key point of North, Wallis, and Weingast's (2009) treatise *Violence and Social Order*. Change often begins with small outcomes and processes that are compatible with elite incentives. But what begins as a privilege for insiders can ultimately become a universal right.

The idea is not to identify a single ideal growth experience that will fit all Arab contexts. Rather, it is to emphasize that whatever growth strategy the Middle East embarks on should accommodate political incentives. Elites have rarely surrendered economic control unless it became essential for their survival. The so-called Arab Spring was a recent knock on the doors of power. Unfortunately, it did not result in genuine economic concessions. The only concessions offered were financial: cheap loans, salary hikes, and bonuses. But such temporary appeasement without changing the underlying rules of the game is unlikely to work for long. The rules remain rigged in favour of business elites in and around the royal circle. Across much of North Africa, crony capitalism is rearing its head again, and insider deals continue to thrive. Economic diversification will be difficult if not impossible to realize, without a new political compact that anticipates a future beyond oil and conflict. At the very minimum, the region needs a new discourse on economic reform that mobilizes public support for two or three fundamental concessions that elites must offer for long-term economic revival.

Strengthening regional cooperation

In the Middle East, questions of national and regional development are closely interwoven. While national initiatives can kick-start economic revival, it will be difficult to sustain without access to regional markets. Few countries have effectively diversified without the expanded markets and deeper trade reforms that regional trade liberalization affords. Turkey's recent economic success is built on strategic cultivation of regional trade linkages. In Asia and Latin America, regional market connections offer an additional avenue for industrialization through entry into global supply chains, which tend to conglomerate spatially. Arab countries are clearly disadvantaged in this regard. A coordinated regional effort is needed to foster trade complementarities, establish regional public infrastructure, and relax trade barriers. Given the repeated failures of past attempts at regional economic cooperation and the adverse security climate, this seems like a pipe dream. No matter how impractical, however, it will be difficult to fulfil any new vision for Arab development without it. In political-economic terms, the rationale for this is even stronger, since it is only through a regionally integrated merchant class that a stable constituency for economic and political reform will emerge. If the broader economic challenges faced by the Arab states are common, they also deserve a common response. Even if a cooperative solution does not serve the narrow factional interests of political elites, Arab civil society must lend its weight to the regional project.

Refocusing the geopolitical discourse

In a region with a history of conflict and violence, it is difficult to conceive economic diversification in isolation from geopolitics. Before the recent

upsurge in violence, countries in the region had begun to witness falling trade costs and growing regional trade. These limited gains have been washed away again by violence. Foreign military interventions seeking regime change have eroded state capacity, demolished public infrastructure, and ripped apart the social fabric of Arab societies. The region has been set back by decades.

If conflict retards development, a genuine economic renaissance in the Arab world will also have geopolitical repercussions. Foreign powers have a deep economic, political, and military footprint in the region. An economically independent Middle East can challenge the established patterns of external hegemony and undermine the prolonged legacy of divide and rule. In this milieu, structural economic change also requires a geopolitical concession from regional and global powers that have high stakes and influence in the Middle East. As the recent refugee crisis has shown, the spillovers from regional conflict are difficult to contain within Arab borders. This is an opportune moment to talk about concessions. A peaceful and prosperous social order is now of direct interest for the global community, especially Europe.

Foreign powers face a deep trade-off between narrow short-term strategic interests and long-term development. The human and economic cost of this trade-off is rising by the day, yet an effective global response has been lacking. Since the start of the Arab Spring, economic development has been conspicuous by its absence in western policy discourse. There has been no grand vision for regional development on the part of multilateral institutions or Western governments. Initiatives such as the Deauville Partnership and the Arab Partnership Fund were miniscule in both size and



significance, and simply substituted talk for action. On the other hand, there has been a major escalation in the sale of military hardware to Arab states. Rather than using their ‘convening authority’ to organize regional funding for a major development initiative, Western powers have sold billions of dollars worth of arms to the GCC states since 2011.

Conclusion

Economic diversification in the Middle East, far from being a purely technocratic challenge, carries deep power implications, involving three interlocking spheres: domestic, regional and geopolitical. By increasing the number and variety of products, diversification not only increases the complexity of economic exchange but also risks generating independent constituencies with political-economic effects on both the domestic and geopolitical power structures. This calls for a more holistic understanding of the challenge of diversification.

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ECONOMIC DIVERSIFICATION BY ARAB OIL EXPORTERS IN THE CONTEXT OF PEAK OIL AND THE ENERGY TRANSITION

Bassam Fattouh & Anupama Sen

Economic diversification has taken on a renewed sense of urgency in Arab oil-exporting countries. This is largely due to a paradigm shift around the future prospects of global oil demand and whether the oil industry will continue to generate sufficient rents to sustain oil exporters’ economies and their extensive welfare systems. There is a growing consensus that oil demand growth is likely to slow over time and eventually plateau or decline as efficiency improvements, technological advances, policy measures to curb climate change and air pollution, and

changing social preferences lead to substitution away from oil in its traditional sectors (such as transportation) which have historically driven oil demand growth. The concept of peak oil demand has now become more accepted, with many scholars, company executives, and policymakers predicting an imminent peak, as early as within the next decade.

Increased uncertainty about the prospects of global oil demand is already changing the behaviour of oil market players, including oil-exporting countries, which are intensifying their efforts to diversify their economies and sources of income. Indeed, economic diversification has been a key developmental goal for the Arab oil-exporting countries for decades, as evidenced in their national development plans. Achieving this objective is seen as essential for their economic security and sustainability. Some Arab oil exporters have made progress over the last few decades in diversifying their economic base and their sources of income; but despite these efforts, most indicators of economic complexity, diversity, and export quality continue to be lower in Arab oil-exporting economies than in many emerging market economies, including commodity exporters in other regions.

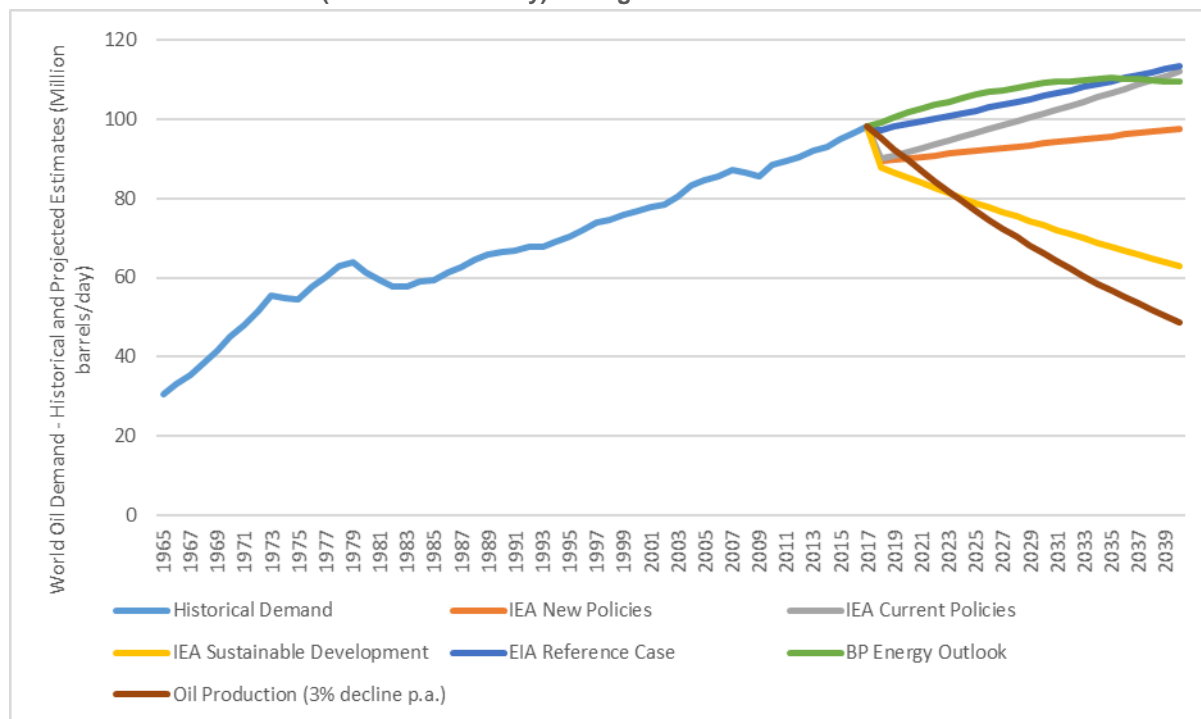
The renewed sense of urgency over diversification constitutes a break with the past—when the concern was mainly over the macroeconomic consequences of heavy dependence on a single export commodity with a highly volatile price—to the present concern about the possibility that as demand slows, global oil markets become increasingly competitive, and oil industry margins decline, Arab oil exporters will no longer be able to rely on oil export revenues for their economic prosperity.

Against this backdrop, this article addresses the following questions: How soon can we expect peak oil demand to

occur; or put another way, how fast is the current energy transition occurring? What are the links between diversification efforts by key oil exporters and the global energy transition? What role should the hydrocarbon sector play during the energy transition? How does the emergence of renewables as a competitive energy source impact economic diversification strategies in oil-exporting countries? And it offers the following responses:

- The speed of the energy transition is highly uncertain. And because is heavily driven by government policies, it will not be uniform across regions, making it difficult to draw firm conclusions on a global scale.
- The diversification strategy adopted by oil-exporting countries will be conditioned by the speed of the energy transition, during which the oil sector will continue to play a key role in these economies, including in their diversification efforts.
- Thus, oil producers will need to be far more strategic in developing their energy sector, including renewables, strengthening forward and backward linkages to help diversify their economies.
- There is interdependence between the success of diversification efforts by oil exporters and the global energy transition. While the transition is already shaping political and economic outcomes in Arab oil-exporting countries, the success (or failure) and the speed at which they transition to more diversified and more resilient economies will also shape the global energy transition.

Projections of world oil demand (million barrels/day) through 2040



Source: Adapted from Dale, S., and Fattouh, B. (2018). [Peak Oil Demand and Long Run Oil Prices](#), OIES Energy Insight 25, Oxford Institute for Energy Studies.

Peak oil demand and the energy transition

Analysts from various organizations offer a wide range of projections of the point at which global oil demand is likely to peak, from the mid-2020s to later than 2040. Some of these – including the International Energy Agency (IEA), US Energy Information Administration (EIA) and BP Energy Outlook, are depicted in Figure 1.

Three main points can be made based on this range:

1. Uncertainty is high. Peak demand forecasts are highly dependent upon their underlying assumptions. Slight changes in assumptions can push the peak demand backward or forward by several years.
2. There could be multiple peaks, due to a ‘rebound effect’—a peak in oil demand could cause prices to fall, triggering higher demand from consumers, leading to one or more additional peaks.
3. Oil will continue to be an important part of the energy mix for the foreseeable future due to its incumbent advantages and its domination of existing

infrastructure. None of the peak oil demand forecasts in Figure 1 display any sharp discontinuity.

While there is unlikely to be a sharp discontinuity in oil use, it is also uncertain how closely the current transition will match the speed of past energy transitions, which historical data show have been slow. Some authors argue that past transitions (e.g. wood to coal and coal to gas), which took decades, occurred in an age of scarcity and were driven mainly by the need for substitution, while the current transition (to low-carbon energy sources) is occurring in an age of abundance and is largely problem-driven. It involves adjusting the selection environment by means of policies, regulations, and incentives (Fattouh, Poudineh, and West, 2018). Also, since the current transition is heavily driven by national-level policies, its speed could differ across regions as well as sectors, making it difficult to draw firm conclusions on a global scale.

Thus, oil-exporting countries should adapt to the energy transition, which is already underway, but its speed is highly uncertain. In their strategic thinking, they should take into account the consolidation of three key trends.

First, government oil substitution policies imply that oil demand is unlikely to increase strongly over the next two decades, although the time at which oil demand growth will slow and turn negative is still highly uncertain. Some countries in OECD Europe have, for instance, announced bans on internal combustion engine vehicles by 2040 as part of their carbon reduction targets, which are among the world’s most ambitious, while in non-OECD Asia, China and India have both announced ambitions to scale up electric vehicles in their fleets, with China aiming to integrate them into its overall industrial strategy.

Second, even in the event of peak demand, without investment in the oil sector, the decline in supply will be faster than the decline in demand. Figure 1 includes a series, which depicts the path of oil production to 2040 assuming no new investments and a 3 per cent decline rate, resulting in a large and widening supply-demand gap. As low-cost producers, Arab oil exporters will likely need to fill this gap by investing in their oil sector, while facing competing demands on their revenues to fund their social welfare measures.



Third, renewables are at an inflection point, and are now globally competitive on a plant-level basis (excluding intermittency costs). While there are many uncertainties related to the energy transition, there is almost a consensus among forecasters that the share of renewables in the energy mix will rise, and especially that the recent cost deflation has been nothing short of revolutionary. Around 5 years ago, US wind costs were \$0.11/kWh (kilowatt hour) and solar costs were \$0.17/kWh, on a fully loaded basis, including the capital costs of construction (Fattouh et al, 2018). Costs have fallen exponentially since then. In 2019, the International Renewable Energy Agency (IRENA) estimated that solar PV costs in the GCC had decline to less than \$0.3/kWh, leaving behind natural gas, LNG, coal, oil and nuclear. In Saudi Arabia and Oman, wind has emerged as another cost-effective option. The four bids submitted for the 400 MW Dumat Al Jandal wind project were reported to be between 2.13 US cents/kWh and 3.39 US cents/kWh.

The strategic role of the oil sector in the energy transition

As low-cost producers with some of the largest reserve bases, Arab oil exporters are expected to fill the supply–demand gap. Therefore, even

when oil demand growth slows, oil will continue to play a role in these economies for the foreseeable future. As leaders develop new visions to transform their countries, the energy sector will be under increasing pressure to show that it can contribute to diversification, not only by generating rents that could be used to create new industries, but also by extending the value chain and creating new industries by fostering backward and forward linkages.

Therefore, the oil sector will continue to dominate the economy, but needs to play a more active role in the diversification process. By extending the value chain, producers can create new industries whose products’ prices are not highly correlated with oil prices—for instance, more complex petrochemical products and finished products manufactured in industrial parks that attract private-sector and foreign direct investment. To illustrate, the Saudi Arabian Oil Company and Dow Chemical established a joint venture in 2011, with an investment of \$20 billion, which incorporates 26 integrated large-scale manufacturing plants with over 3 million metric tonnes of capacity per annum. It has introduced many new products to Saudi Arabia (e.g. the first isocyanates and

polyurethane plants), enabling many manufacturers of intermediate products that previously either did not exist or only existed through imports of raw materials, potentially opening up a range of new downstream opportunities.

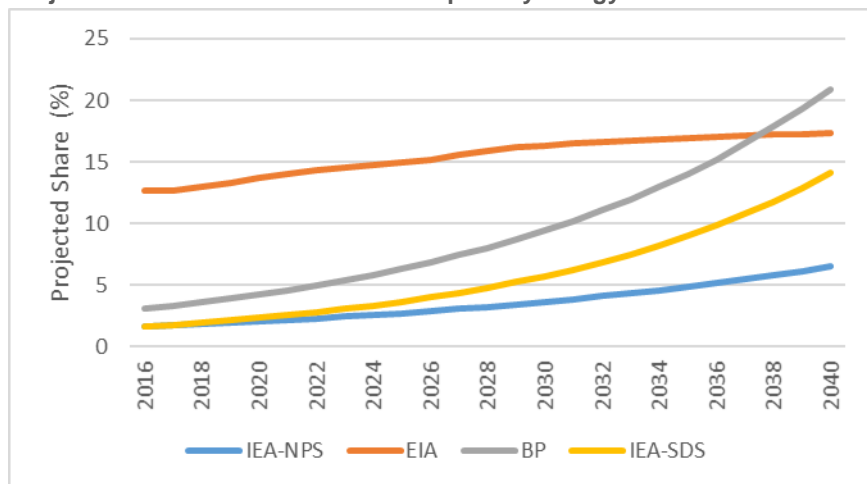
Adding more stages to the oil value chain also generates different types of jobs, including in the service sector, such as trading, marketing/sales, procurement, and logistics as well as supporting services such as accounting, finance, and human resource management. In such a context, local-content requirements that give priority to hiring nationals, contracting domestic companies, and procuring locally produced goods and services will also be important.

Also, regardless of the speed of the energy transition, governments should pursue measures to optimize the use of the resource base. These include energy-efficiency measures, rationalizing domestic energy consumption, reforming energy prices, reforming the power sector, and diversifying the energy mix. Such measures are complementary to an overall economic diversification strategy, which entails structural changes and fiscal reforms.

Finally, Arab countries should not miss out on the renewables revolution. They have great potential for renewable energies. High irradiation and wind potential, combined with fewer limitations on land for construction of wind and solar farms in locations that are close to the regions’ main energy markets, create an opportunity for these countries to serve rising domestic energy demand and free hydrocarbons for exports, and to harmonize with the changing global energy landscape.

However, as argued by Fattouh et al (2018), given the uncertainty about the

Projected share of renewables in total primary energy demand



Source: Authors; Based on data from the IEA, EIA and BP.



speed of transition, Arab oil exporters need to adopt a strategy that is likely to be successful under a wide set of future market conditions, by gradually extending their energy model to integrate renewables rather than completely shifting from hydrocarbons to renewables. After all, renewables do not generate the high returns that the hydrocarbon sector does, and cannot alone meet the real needs of these economies, such as generating enough government revenues, creating enough jobs, and supporting an extensive welfare system.

The role of oil policy and producer cooperation

Faced with the possibility that oil demand may fall, some suggest that it is rational for Gulf Cooperation Council countries to monetize their reserves as quickly as possible and squeeze out high-cost producers to gain market share—just as with any other competitive market. However, this argument ignores the significant challenges that a shift to a competitive market poses for major oil-producing countries. If most low-cost producers adopt a similar strategy in the face of slowing demand growth, this will trigger a massive fall in oil prices and revenues, derailing the entire economic diversification agenda. The heavy reliance on oil revenues limits how quickly oil exporters can adapt to a more competitive world where prices converge to the marginal cost of physical production. There is also the question of whether low-cost producers can sharply increase their production capacity, especially in an environment of low oil prices. This is a major undertaking, which requires huge investments and would face overwhelming challenges, especially in countries with unstable political and economic conditions.

Thus, even as we shift to more competitive markets, oil policy and

management of relations between producers will continue to matter. Rather than simply pursuing a policy of noncooperation and competition between low- and high-cost producers, it is most likely that producers will continue to cooperate and restrain their output in an attempt to increase revenues. This is despite the fact that the challenges in producers’ pursuing a cooperative approach are immense especially in a more competitive oil market.

Economic diversification and the global energy transition

The global energy transition is already shaping political and economic outcomes in the Arab oil-exporting countries—but those countries’ transition to more diversified and resilient economies will also shape the global energy transition. In other words, this is a two-way street. If the transition in Arab countries does not go smoothly and they fail in their diversification efforts, this could result in lower investment in the oil sector, output disruptions, and more volatile oil prices. Also, in the absence of diversification, oil exporters will continue to push for higher oil prices. These have the effect of speeding up the global energy transition. In contrast, if these countries succeed in their diversification objectives, not only will they increase the resilience of their economies, but this will allow them to pursue a more flexible and proactive oil policy and adopt long-term strategies that could influence the speed of global energy transition and secure long-term oil demand.

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OIL-PRODUCING COUNTRIES IN THE MIDDLE EAST AND AFRICA MUST FOCUS ON HOW TO TRANSFORM THEIR ECONOMIES

Rabah Arezki

Many oil- and gas-rich countries—including those in the Middle East and North Africa, such as Algeria and Saudi Arabia—have either announced or put in place policies to reduce their dependence on oil by diversifying their economies. The collapse in oil prices, which started in 2014 and is expected to be protracted, has put diversification at the forefront of the policy debate.

Although many fossil fuel exporters understand the need to diversify, few have successfully done so. Historically, diversification away from oil extraction has been difficult for oil-rich nations—in large part because the state’s top-down approach has not given managers and other economic agents the confidence or incentive to embrace new ideas, innovate, and take risks. For example, the incentive structures of state-owned oil companies in many countries around the world, including in the Middle East and North Africa, have not consistently encouraged managers and employees to achieve their full potential and adapt to new technology rapidly affecting their industry. Many state-owned companies embark on missions outside their core activities and competencies, innovate little, and struggle to keep talented employees. What’s worse, several state-owned oil companies around the world have a heavy burden of debt, even though they sit on large oil reserves that are relatively cheap to extract.



Shift in focus

If countries were to shift their focus from the end goal, diversification, to how to get there—that is, to the transformation process—they might find it easier to diversify. The effort involves steps to shift away from the dominant oil and gas sector. A focus on transformation involves an approach to that dominant sector that can spill over to, and even help foster, sectors outside hydrocarbons. That is, by embracing transformation, countries will focus on getting incentives right for managers and other economic agents and turn technology and innovation in energy markets, now seen as disruptive enemies, into friends. Countries that take this approach are less likely to stumble or resist change.

Technological changes in energy markets can help the sustainability of economies that depend on oil revenues. More agile economic systems with appropriate corporate governance structures—structures that empower managers and employees—can more easily take advantage of new technology to mitigate risks associated with potential disruptions in energy markets, and can even create opportunities. For example, publicly listed companies have tended to fare better than state-owned (or even privately owned) companies. Because these companies are accountable to shareholders, they are more likely to adapt to new circumstances and stay ahead.

At the country level, the lack of government accountability combined with state ownership of the oil sector has exposed countries to considerable risk. The sector is largely resistant to changes in energy-producing and energy-using technologies that can dramatically affect energy markets.

One example, on the energy-producing

side, is the advent of the combination of hydraulic fracturing—often called fracking—and horizontal drilling. This technique made production of oil from shale much simpler, which changed the dynamic of the oil market. Shale oil output can be turned on and off much more quickly and cheaply than that of conventional oil drilling; this will eventually lead to shorter and more limited oil-price cycles as output gears up when prices rise and slows when they fall. The rapid increase in the production of shale oil—to 5 million barrels a day in a global market of 94 million barrels a day—also arguably contributed to the oil supply glut that led to the collapse in oil prices.

Another example involves changes in energy-using technology. As use of hybrid and electric cars grows, the transportation sector will rely increasingly on the electricity sector and vice versa, and the role of oil products will diminish. That's bad news for oil, whose main use has been for transportation—through products such as gasoline, diesel, and jet fuel. Technological change will also spur competition for oil from other sources of energy—such as natural gas and eventually renewables such as solar and wind. Technological change is, of course, related to the level of energy prices or more generally to the need to innovate—for example, when the security of the energy supply is at stake, as it was during the oil crisis of the 1970s.

The so-called peak-oil hypothesis, developed in the mid-1950s, posited that global oil production, limited by geological reality and the ability to extract oil, would top out around 2020. For years, the hypothesis seemed on target. But as production was supposed to be nearing its peak, the shale revolution began. In many respects, this revolution, and the surge in supply it triggered, can be viewed as a

response of oil supply to high prices in the 2000s, driven by China's economic expansion and ensuing greater market for oil. It was a direct challenge to the overly pessimistic peak-oil view that geological factors would limit supply.

It is unclear, however, to what extent the lower prices ushered in by the shale revolution will delay the transition away from oil use in the transportation sector. There is, in fact, evidence that firms in the auto industry tend to innovate more so-called clean technologies when they face higher fuel prices.

Stranded assets

Understanding the role of technological change in energy markets is important, because such change does much to determine the fate of oil and of the countries and companies that depend on it.

Transition to lower-carbon or carbon-free energy (such as renewables), a major goal of the effort to contain global warming, can hurt oil-rich countries. Reduced demand for carbon-rich fuels such as oil will make it uneconomical for these countries to tap their reserves—turning those reserves into so-called stranded assets.

The historic 2015 Paris Accord to limit the rise in global temperature to less than 2 degrees Celsius accentuates the transition away from fossil fuels fostered by changes in energy-producing and energy-using technologies (such as renewables and electric and hybrid cars). There is evidence that a third of oil, half of gas, and 80 percent of coal reserves will be kept in the ground forever if the goals of the accord are reached. Among those severely affected would be the Middle Eastern oil-producing nations. About 260 billion barrels of oil in the Middle East cannot be burned if the world is to reach its goal of limiting global warming. In addition to the oil, equipment and other capital used to



explore and exploit those reserves could also become stranded.

And the amount of potentially stranded assets is growing. Recent giant discoveries of oil and gas (in Egypt, Israel, and Lebanon) are expanding the list of countries whose oil and gas assets may never make it out of the ground. With so many countries exposed to the risk of stranded assets, it is a priority for governments and businesses to diversify to help adapt to and mitigate this risk.

Reducing carbon

In any quest to diversify, the move toward reducing the carbon component in energy will be beneficial because it gives countries great opportunities to harness the potential for relatively untapped renewable resources. The Middle East and North Africa are not only endowed with vast oil reserves, they also have large and largely untapped renewable resources. Indeed, every six hours the sun delivers to the world's deserts more energy than the planet consumes in a year, according to DESERTEC—an initiative whose vision of a global renewable energy plan involves harnessing sustainable power from areas with abundant renewable sources of energy. Studies by the German Aerospace Center demonstrated that the desert sun could easily supply enough power to meet rising demand in the Middle East and North Africa while also helping to power Europe.

Solar power and other renewable energy assets give countries in the Middle East and North Africa the opportunity to offset the risk of stranded oil and gas assets. Solar radiation is indeed highest in that region—along with parts of Asia and the United States—according to the US National Aeronautics and Space Administration.

These non-oil and -gas resources can help address the rapidly growing

electricity demand of an expanding population in the Middle East and North Africa. But to harness the power of renewables, the region needs improved and expanded infrastructure, a better-educated population, a strong state, and appropriate incentives for economic managers and entrepreneurs to adopt existing frontier technology. Several countries have already embarked on ambitious projects to increase their renewables sector. The United Arab Emirates, for example, wants 24 per cent of its primary energy consumption to come from renewable sources by 2021. Morocco has unveiled the first phase of a massive solar power plant in the Sahara Desert that is expected to have a combined capacity of two gigawatts by 2020, making it the single largest solar power production facility in the world.

An urgent need

The decline in oil and gas prices may make transformation imperative. The adage that 'necessity is the mother of invention' seems to have a particular resonance for oil-rich countries in the Middle East and North Africa, which have been shaken by the decline in oil prices and recognize that they must develop economies resilient to the changes in energy markets. Dubai, for example, facing the depletion of its oil reserves, transformed itself into a global trade hub. Countries and businesses that rely on these markets, and the revenue they generate, must formulate policies to address risks and embrace opportunities presented by transformation.

Institutional factors—such as corporate governance, legal systems, and contestable markets (those in which there are no barriers to entry and exit)—and patronage spending in state-owned companies affect attitudes toward innovation and openness to new ideas and, therefore, the process of

transformation in oil-rich countries. For example, large public-sector employment financed by oil revenue has stifled the impetus for innovation. Economic policies that are not geared toward changing attitudes are unlikely to deliver the needed transformation for oil-rich countries.

Saudi Arabia—the region's, and perhaps the world's, most important oil producer—seems aware of the need to augment the long-time source of its riches with non-oil income. As part of its ambitious plan to transform its economy, the country announced a public offering of 5 percent of the state-owned oil company, Aramco. That appears to be a step toward emulating publicly owned Western energy companies, such as Exxon—which once concentrated on oil, but broadened their focus to become energy companies, balancing their oil assets with other forms of energy.

The focus on the end goal of diversification has too long kept countries in the Middle East and North Africa from getting the process right. Transformative policies should move away from top-down approaches that pick which sectors to develop. Instead, they must develop an environment that promotes market contestability and changes the incentives of managers and tech-savvy young entrepreneurs and helps them, their firms, and ultimately the whole economy reach their potential.



THE ROLE OF THE ENERGY SECTOR IN THE TRANSFORMATION OF PRODUCER ECONOMIES

Ali Al-Saffar

This article is based on the 2018 International Energy Agency (IEA) publication Outlook for Producer Economies and draws from a variety of other IEA analyses, including the World Energy Outlook. The views expressed in the article do not necessarily reflect the views or policy of the IEA Secretariat or of individual IEA member countries.

The fall in oil prices since 2014 has taken a heavy toll on producers across the Middle East, with net incomes from oil and gas in the region falling 45 per cent on average in 2016–2017 from their high of \$755 billion in 2010–2015. The consequent fiscal strain and slowdown in economic growth has refocused the minds of policymakers on the imperative of reducing reliance on hydrocarbon revenues by pursuing structural economic change.

Recognition of the need for economic diversification is not new; it was identified as a strategic necessity in development plans across the region as early as 1970. But success has been limited, partly because the urgency with which reform was pursued has tended to follow the oil price cycle, diminishing when prices rose.

Future uncertainty in the energy markets means that, now more than ever, this pattern needs to be broken. On the supply side, the shale revolution in the United States has changed the calculus across energy markets. By 2025, projections in the IEA’s (2018) *World Energy Outlook* suggest, the US could account for one in every five barrels of oil produced globally and one-quarter of the world’s natural gas production, and the nature of the short-cycle investments associated with this production increases the potential price volatility in the short and medium term. On the demand side, improved efficiency and (to a lesser degree) the move towards electrification of automobiles are making a dent in oil demand in the transportation sector, which currently accounts for over half of all oil consumption. Increasing public perception of the challenges of climate change and the growing policy push towards energy transitions add to the uncertainty around future oil demand, providing further incentive for producer economies to enact changes now that will increase their resilience in the future.

Not all producers share the same pressures and challenges. But for countries with young, fast-growing populations, like Nigeria, Iraq, and Saudi Arabia, the current economic model, which channels oil and gas revenues to public-sector jobs and government-led consumption, will be

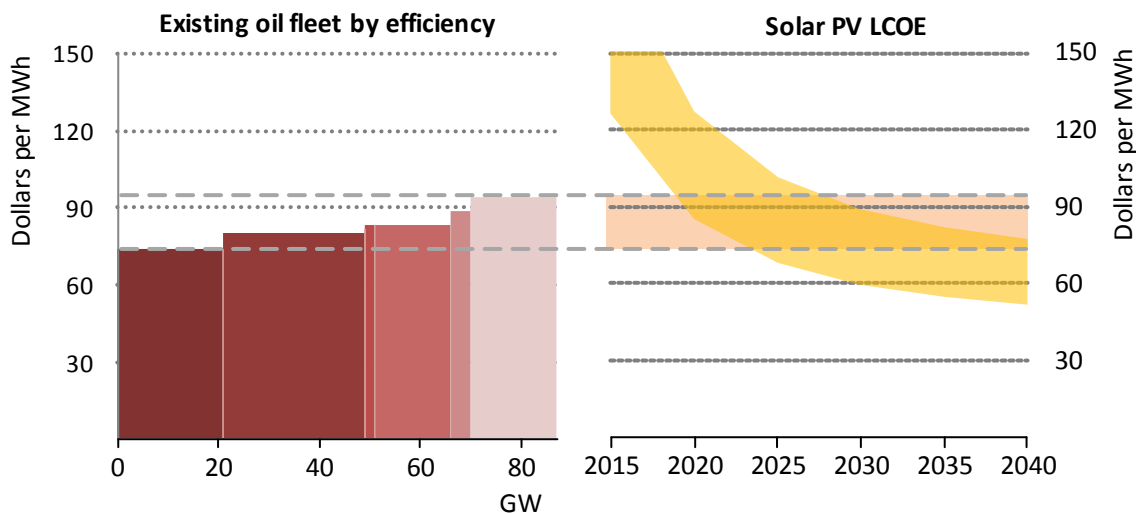
increasingly difficult to maintain, even if oil prices trend higher. In Iraq, for example, where around one-third of all jobs are with the government, population growth alone means that, without a change to the existing pattern of job creation, the public-sector wage bill would reach around \$70 billion in 2030, equivalent to 40 per cent of the anticipated net oil and gas income that year.

If oil prices trend lower because of increased supply, decreased demand, or a mixture of the two, the impact on producer economies would be even starker: Across the Middle East, per capita income would be 50 per cent lower by 2040 than in a scenario where demand keeps growing and prices remain robust. The cumulative lost income from oil and gas to 2040 would reach \$6.5 trillion (equivalent to almost three years of the region’s current total gross national product).

Phasing out subsidized use of energy to improve its efficiency

According to estimates by the IEA, fossil-fuel consumption subsidies totalled around \$105 billion across the Middle East in 2017. Artificially cheap energy encourages wasteful consumption. Primary energy demand in the Middle East has grown at 4.4 per cent per year since 2000, a rate that is more than double the world average. Among other things, this has meant that two in every five new barrels of oil production have been consumed

Levelised cost for solar PV, 2017-2040, compared with existing oil-fired generation at \$40 per barrel oil price





domestically during this time.

Economies across the region are now among the most energy-intensive in the world—the United Arab Emirates, the least intensive in the region, requires 10 per cent more energy to generate a dollar of economic output than the world average.

Beyond the fiscal burden and the impact on consumption, subsidies also distort broader investment incentives across the energy sector. Low natural gas prices, for example, have reduced the incentive for private companies to invest in new exploration and production projects in parts of the Middle East.

Besides accommodating the fact that low-cost energy is deeply embedded in the social contract in many producer economies, successful reform must also reconcile the need to reform prices with the imperative of sustaining or even enhancing industrial competitiveness. Across the Middle East, even without subsidies, most oil and gas producers would still have a comparative advantage in energy, since a low production cost base can provide a stable low domestic price. The implications of pricing reform for energy consumers can be mitigated substantially if reform is paired with enhanced energy efficiency measures. Raising fuel and electricity prices reduces the payback period for products with higher efficiency, and helps raise public awareness of the links between efficiency and the cost of the energy they consume; but a push is typically required on the supply side to ensure that more efficient products are available on the market.

Ensuring adequate investment for a dynamic upstream sector

The ability to maintain oil and gas revenues at reasonable levels provides an important element of stability for the

economy as a whole, especially when market conditions are tough. In this regard, though it may sound counter-intuitive in the narrative on economic diversification, it remains crucial for producers to attract investment and maintain or improve the productivity of their upstream sectors. Occupying the bottom end of the oil supply cost curve, Middle East producers could remain integral producers even in a Paris-compliant energy landscape where oil demand peaks imminently and falls to around 70 million b/d by 2040. Some producers, led by Saudi Arabia and the United Arab Emirates, have already also shown that through intensified efforts to eliminate gas flaring and methane leakage, they are also extremely competitive on the basis of greenhouse gas emissions intensity, a factor that could differentiate suppliers of oil in the future.

Supporting the development of cleaner and more efficient energy technologies

Many producers have world-leading expertise in energy technologies; in addition to their potential in renewables, they are also well positioned to develop new approaches that reduce or minimize the lifecycle emissions of oil and gas. The argument becomes particularly compelling when synergies are found between industries. This is already happening to some extent, for example, in the United Arab Emirates, where over 40 million standard cubic feet per day of carbon dioxide are being captured at the Al Reyadah steel plant and piped to be used in enhanced oil recovery. This has the added benefit of freeing up much-needed natural gas that would otherwise be used for the same purpose. Oman is pioneering the use of large concentrating solar projects for enhanced oil recovery. There are large-scale opportunities to use solar energy to meet the Middle East's increasing demand for clean water through desalination. This is a

particularly crucial area, with the production of desalinated seawater in the region projected to increase almost 14-fold by 2040. The shift from thermal processes towards electricity-fed reverse osmosis has the dual benefits of reducing hydrocarbons combustion for water while also providing an outlet for excess renewable power at certain times in the day (thereby reducing the problem of curtailment). It should not be assumed that the comparative advantage in energy of today's major producers will diminish in the energy transition.

Conclusion

Although the risks are not evenly distributed across producers, demographic pressures and uncertainties on both the supply and demand sides mean that the imperative is growing for countries that rely on oil and gas revenues to reorient their economies. The transformation process will no doubt be complex and challenging, but the way it unfolds will have profound implications for the producer economies themselves, and the global energy system and energy security more broadly. This is because the prospects for stability in oil markets are increasingly linked with those for the reform agenda in producer economies. Venezuela provided a cautionary example of how developments in one producer economy can have serious implications for global balances. Price cycles are likely to continue to be a feature of commodity markets, and may even become more frequent given the increased prominence of short-cycle shale investments in the global supply picture. Periods of higher prices can provide relief but also bring with them a considerable risk, particularly if they ease the pressures for change at the same time as they increase the incentives for large consumers to accelerate the policy momentum behind alternatives to oil and gas. This



risk means that successful transformation of producer economies, underpinned by a strong energy sector, is of fundamental importance to actors well beyond those countries themselves.

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FISCAL SUSTAINABILITY AND HYDROCARBON ENDOWMENT PER CAPITA IN THE GCC

Monica Malik and Thirumalai Nagesh

Gulf Cooperation Council (GCC) economies remain highly dependent on the hydrocarbon sector in terms of the composition of GDP and as a source of government revenue and export base. The GCC countries that are currently most resilient and best able to cope with the lower oil price environment are those with large hydrocarbon reserves relative to their populations (hydrocarbon rich per capita). These countries are underpinned by strong fiscal fundamentals – low debt and high foreign exchange reserves—that support their economic sustainability despite heavy dependence on the hydrocarbon sector. High foreign exchange reserves (absolute and per capita) also provide an additional source of government revenue through investment income, which can be used during times of lower oil prices. This does not mean that these economies should not look to diversify. Rather, it highlights that their fiscal strength results in less pressure on the economy during times of low prices and reform. Thus, fiscal sustainability at this stage is mostly unrelated to the degree of economic diversification. Fiscal diversification has largely been weak across the region, with hydrocarbon

revenue remaining the main source of income. That some countries have a relatively higher share of non-oil revenue in total revenue could merely reflect their weaker hydrocarbon endowment rather than a diversified revenue base (especially taxes) and lower subsidy levels. Fiscal diversification is just one aspect of overall economic diversification.

A broadening of the economic base will also be conducive to raising non-oil revenues (alongside the introduction of taxes and government fees), though times of fiscal austerity can act as a headwind to government objectives of developing non-oil sectors. The underlying fiscal sustainability of GCC economies is especially important given that the region has had limited success in widening the economic base (composition of GDP) much beyond pre-2014 levels.

Variations in hydrocarbon endowments per capita

A key factor in fiscal sustainability is the size of total hydrocarbon reserves per capita (as distinct from the size of the reserves themselves or hydrocarbon revenue as a percentage of total revenue). On this basis, the GCC countries can be broadly divided into two categories:

- Hydrocarbon-rich per capita: These countries have large hydrocarbon reserves relative to their populations. They include Kuwait, Qatar, and the United Arab Emirates (UAE), led by Abu Dhabi.
- Hydrocarbon-poorer per capita—These countries have relatively smaller hydrocarbon reserves relative to their populations. They include

Bahrain, Oman and Saudi Arabia. Within this group, Oman and Bahrain are in relatively weaker positions.

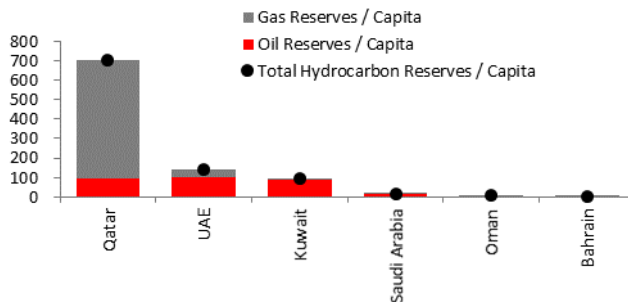
These are calculated on the basis of national populations (i.e. they do not include expatriates).

The per-capita hydrocarbon ratio is particularly important in the GCC given the social contract between the state and citizens. Hydrocarbon revenue falls to the government and is then distributed and mobilized for the well-being of the population and country. This has provided a framework that supports citizens from cradle to grave in various ways, including free education and healthcare, highly subsidized utility prices, land, and cheap financing for housing construction. This support varies across the region; differences in the pace of reforms since 2015 contribute to this variation. The public sector has also been a key employer of nationals, and there has been a limited tax base. (We calculate hydrocarbon endowment based on the number of nationals, as this is population that the government supports under the social contract. The expatriate population tends to adjust to economic cycles and requirements.)

This social contract is changing as oil prices fall and domestic populations increase. Some subsidies have been reduced and some fees and taxes introduced since 2015. At the same time, strong population growth means that the younger generation of GCC nationals may not fully be able to rely on the state for employment. Despite these adjustments, however, the social contract remains largely in place.

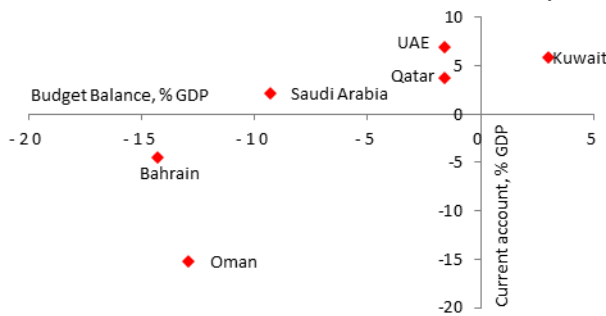


Hydrocarbon endowment per capita (barrels)



Source: BP (hydrocarbon data); regional statistical agencies (population data); authors' calculations and methodology.

Hydrocarbon endowment per capita reflected in current account and fiscal balance (% of GDP in 2017)



Sources: Regional statistical agencies; ADCB estimates .

The nature of the economies and impact of the social contract has resulted in hydrocarbon richer countries generally having to spend less of their hydrocarbon income to support their populations and have built up larger fiscal surpluses and foreign exchange reserves during periods of higher oil prices—and for the most part, smaller deficits and lesser fiscal adjustments after the collapse of the oil price at the end of 2014.

Hydrocarbon endowment reflected in fiscal and economic indicators

Hydrocarbon endowments are reflected in a number of fiscal and economic indicators, as discussed below.

- **Budget break-even oil price:** This is the required oil price for a fiscal position to be balanced. For most GCC countries, it has fallen since the peak in 2014 as governments reduced spending and introduced fiscal reforms. The hydrocarbon-rich per capita countries have a lower budget break-even oil price and

a lower external break-even oil price (the oil price needed for the current account to be balanced). This again reflects that less of the hydrocarbon income is spent on the national population and more is saved.

- **Debt-to-GDP ratio:** The hydrocarbon poorer per capita countries generally have higher government debt levels relative to GDP. The larger fiscal deficits in Bahrain, Oman, and Saudi Arabia have resulted in greater funding requirements and a more rapid increase in government debt, which in turn results in more government spending on debt service. Economic research consultancy Capital Economics recently estimated that Bahrain's interest payments could reach as much as 15–20 per cent of total spending by 2020 (Capital Economics, 2018). However, for most GCC countries, interest

payments still account for a small share of overall spending.

- **Foreign exchange reserves:** The hydrocarbon-rich per capita countries have built up greater foreign exchange reserves—reflecting their larger fiscal surpluses during times of higher oil prices and lower pressure to draw down these reserves to cover fiscal deficits. Income from these reserves, often invested by their sovereign wealth funds, provides an additional source of income (investment) and in a way is a form of diversification and can be utilised for counter-cyclical support during times of lower oil prices.
- **Sovereign ratings:** The hydrocarbon-rich per capita countries have substantially higher sovereign ratings, underpinned by large foreign exchange reserves and low debt levels. Despite the sharp



correction in the oil price, Abu Dhabi and Kuwait have not seen any ratings downgrades by the three main ratings agencies since 2014; their ratings remain among the strongest globally. On the other hand, Bahrain, Oman, and Saudi Arabia have seen multiple downgrades over the same period. The ratings are reflected in the cost of borrowing and the risk premium, with hydrocarbon-poorer per capita countries more susceptible to changes in sentiment, including globally, and dependent on capital inflows.

- **GDP per capita and unemployment:** Reflecting the fact that fewer resources in relative terms are available to support their populations, the hydrocarbon-poorer per capita countries also tend to have lower GDP per capita and spending power. Moreover, unemployment levels for nationals tend to be higher, though regional data on this front are weak. More government resources have to be spent relative to hydrocarbon income to support employment opportunities for the national population. The hydrocarbon-rich per capita countries tend to have a larger share of expatriates in their populations given their smaller populations relative to economy size.

There are naturally variations within the GCC based on government policy and effectiveness. During times of high oil prices (2005–2008), Kuwait saw substantially larger fiscal surpluses as a percentage of GDP, as the government made relatively little progress in its investment plans, partly due to the difficult relationship between the government and parliament.

Meanwhile, in Qatar, government debt was higher in the late 1990s, reaching about 74.4 per cent of GDP in 1999, largely due to borrowing to develop the gas industry. However, the rise in gas income resulted in a sharp reduction in government debt to 8.9 per cent of GDP in 2007, and foreign exchange reserves rose. Overall, GCC countries used strong oil revenues in 2002–2014 to reduce debt levels and build up foreign exchange reserves. Thus, they entered the lower oil price cycle in a better fiscal position than in previous cycles.

Fiscal reform momentum

Since late 2014, the pace of fiscal reform in the GCC has gathered momentum. This is especially important given the large youth population and fast national population growth as well as medium- to long-term structural challenges to the oil price, including from new technology (shale, renewable energy sources).

Fiscal reforms have been much more extensive than in previous oil price downturns, extending into areas that were previously seen as too sensitive. For example, subsidies have been reduced, unlike in the 1980s and 1990s when the main fiscal adjustment was through the retrenchment of spending. A significant development for the GCC was the introduction of VAT in Saudi Arabia and the UAE on 1 January 2018. This was a vital initial step in developing tax revenue in the region, which has a weak tax base. However, the overall pace of fiscal reform moderated markedly from 2017, which partly reflects reform fatigue and the difficulty of sustaining a multi-year reform programme. The weakening in economic momentum as a result of fiscal adjustments limited the ability of the economy to absorb new measures. A critical factor supporting the more gradual pace of fiscal adjustment from 2017 was a rise in the oil price,

especially from the second half of the year. In Saudi Arabia, a public-sector handout package for Saudi citizens was announced in January 2018 to cushion the impact of VAT and subsidy reforms. In the UAE, both Abu Dhabi and Dubai announced packages to support economic activity in mid-2018, including measures aimed at reducing short-term pressure on corporations and individuals and initiatives to improve the business environment and encourage domestic and international investment.

Greatest adjustment by country

The pace of reform has varied across the GCC between 2014 and 2018. The UAE and, to a lesser degree, Saudi Arabia have been the most proactive in introducing fiscal reforms—one hydrocarbon-rich per capita and one hydrocarbon-poorer per capita country. This reflects that other economic, social, and political factors contribute to the ability of regional governments to carry out fiscal reforms. However, we believe that hydrocarbon endowment does play a strong role, including its effect on the variations in GDP per capita amongst the national population across the region and countries’ ability to absorb fiscal adjustments, especially on a cumulative basis.

The UAE has frontloaded much of the fiscal adjustment and cutback in spending. The pace of subsidy reform in Abu Dhabi and the broadening and raising of government fees occurred at a steady and staggered pace since early 2015 and 2017. However, in percentage terms, the rise in energy prices in the UAE was less than in some other GCC countries, because subsidies were lower and prices were higher to start with.

In Saudi Arabia, the pace of reform has been patchier despite announcing a very ambitious fiscal reform programme in 2016 aiming for a balanced budget by 2020 (this target was later extended to 2023). There have been two main phases of subsidy reforms – i) end-



2015 and January 2016 and ii) January 2018. The simultaneous price increases in a number of areas, rather than a more staggered approach, greatly increased the impact on the population in certain periods. However, the impact of the second round of subsidy reforms on Saudi citizens and the introduction of VAT was dampened shortly after, with the introduction of an allowance package for public sector employees. Moreover, the reduction in public sector benefits in Saudi Arabia was short-lived and was reversed.

The other four GCC countries have seen a more moderate pace of fiscal reform. There have been no major reforms in Qatar since 2017; following the regional dispute, the government’s focus has been on stabilizing and supporting the economy. In Kuwait, there has been substantial populist opposition to fiscal reform, led by the National Assembly. This is the most independent legislature in the GCC and a central stumbling block for the government to make progress with its fiscal reforms. For Bahrain, wider GCC support remains vital for the investment programme given the limited fiscal reforms.

The UAE, with its high hydrocarbon endowment per capita and greater pace of fiscal reform, has one of the strongest fiscal position among GCC countries. Moreover, it benefits from the more diversified nature of Dubai’s economy (which, however, was not immune to the fall in the oil price given the softening in regional demand). The UAE’s consolidated fiscal position is expected to see a surplus in 2018, supported by the reforms and the expected higher oil price average. Kuwait will also likely realize a fiscal

Fiscal and economic indicators: Budget Breakdown Oil Price (\$/bbl)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Hydrocarbon-poorer per capita										
Bahrain	76	81	99	112	116	119	116	118	107	103
Oman	65	66	71	81	83	96	103	96	89	84
Saudi Arabia	57	65	67	78	79	92	106	95	96	78
Hydrocarbon-richer per capita										
UAE	44	66	70	74	77	76	83	65	60	65
Qatar	29	27	33	38	43	50	54	50	53	57
Kuwait	34	29	45	43	49	52	56	49	47	51

Source: IIF (2018). “Hydrocarbon Exporters Breakeven Oil Prices have declined”, IIF Research Note, The Institute of International Finance, 1 February.

surplus in 2018, with Qatar seeing a small and contained deficit. The hydrocarbon-poorer per capita countries are expected to see a relatively larger deficit relative to GDP, albeit narrowing from 2017 levels. However, the pace of fiscal reform in Bahrain is expected to increase beginning 2019 linked to a \$10 billion GCC support package (from Kuwait, Saudi Arabia, and the UAE), which was announced in October 2018. The support will be spread over five years and will be linked to Bahrain’s Fiscal Balance Program, which aims to balance the budget by 2022. Bahrain’s fiscal adjustment plan includes a 5 per cent VAT (introduced on 1 January 2019), reduction in subsidies, and pullback in expenditure.

Other factors have been also important for the pace of fiscal reform and the ability of governments to enact reforms. However, there is still some indication that hydrocarbon endowments are a factor, especially in the ability to lower government spending. The hydrocarbon-richer per capita countries have generally been able to cut government spending by more than the hydrocarbon-poorer per capita ones. In the hydrocarbon-poorer per capita countries, wages and salaries tend to make up a larger total share of spending, whilst debt servicing costs have also been increasing with rising debt levels. This makes it harder to reduce spending on a multiyear basis.

Moreover, with higher GDP per capita in the hydrocarbon-richer per capita countries, their populations can more easily absorb fiscal reforms, though this, too, is affected by other factors. The larger proportions of expatriates in the populations of the hydrocarbon-richer per capita countries also support greater fiscal reforms. A number of GCC countries have introduced greater price adjustments for expatriates than for nationals. On the other hand, the nationals of the relatively hydrocarbon poorer per capita countries are more impacted by the subsidy reforms given the largely lower average GDP per capita, resulting in some cases in greater pushback. Moreover, the need for fiscal reform tends to be greater in these countries.

Looking ahead, two factors are likely to be central to boosting fiscal sustainability: deepening of the tax base, and lowering the share of wages in government spending. For some countries, further subsidy reforms are required. A number of factors will be important for developing the tax base, including reducing the role of the public sector, improving the business climate, and developing a framework for supporting private-sector growth. The development of the private sector is also important for creating job opportunities for the youth.



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PRICING POLICIES AND DEVELOPMENT IN THE GULF COOPERATION COUNCIL

Tom Moerenhout

After the oil price plummeted in the summer of 2014 and remained low throughout the next years (the OPEC Reference Basket only moderately recovered to an average of \$52 in 2017), the fuel-producing countries of the Gulf Cooperation Council (GCC) started implementing energy pricing reforms. For many years, pricing reforms had been planned and envisioned but, due to the quintessential role of low energy prices in the domestic political economies of Gulf countries, never really implemented. This inaction resembled the lack of progress on diversifying economies away from oil to other productive sectors, and on changing the domestic social contract from one that is reliant on public employment and universal pricing policies to one with private employment, market-based pricing structures, and targeted social safety nets.

GCC countries have now made considerable progress in implementing both fuel and electricity pricing reforms, thereby achieving some form of fiscal consolidation and reducing the massive deficits that were rampant across the region after the oil price collapse. This has unquestionably reduced the unsustainable fiscal stress that GCC countries were and are experiencing, mostly as a result of the public wage bill and secondarily as a result of price subsidies. Pricing reform may not yet be a norm, but it is certainly a trend.

Pricing reform strategies and growth

While all GCC countries reformed energy prices, they did so in remarkably different ways. The United Arab Emirates (UAE), Oman, and Qatar were able to implement a periodic adjustment system that linked national prices to international and regional prices. Kuwait tried to do the same but was unsuccessful; instead, like Saudi Arabia and Bahrain, they relied on one-off price increases. Unlike Kuwait, however, Saudi Arabia and Bahrain were able to implement more than one ad hoc price adjustment.

Even though energy price reform has had different popular receptions in different countries, it seems to be one policy that authorities recognize is crucial for adjustment to falling oil revenues, and it has persisted in all GCC countries. Overall pre-tax energy (gasoline, diesel, and electricity) subsidies fell from \$116 billion in 2014 to \$47 billion in 2016 based on a price-gap model (IMF, 2017).

In an environment of low oil prices coupled with end-use energy price reforms, overall growth prospects in the medium term have been subdued, though non-oil growth has been improving in some countries recognizing the need for accelerated economic diversification. The International Monetary Fund (IMF, 2017) has estimated that the reforms proposed by GCC governments could lead to an increase of 1.7 to 6.6 per cent in their non-oil GDP by 2020, based on each country's reform path, and an additional 1.5 to 3.0 percentage points of non-oil GDP would be generated with the introduction of VAT as proposed by

different countries and contained in the ratified GCC VAT agreement.

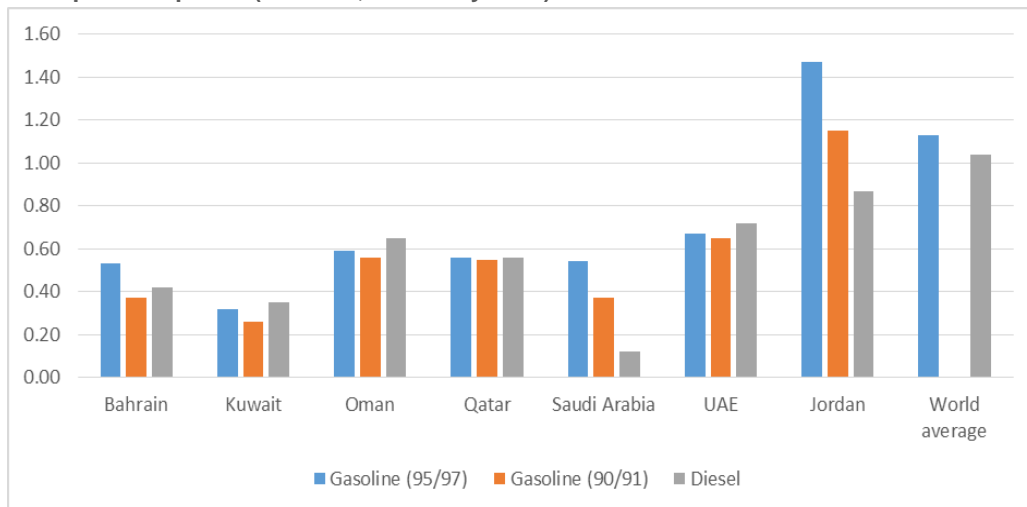
Gradual fuel price reforms

The UAE, Oman, and Qatar have been able to switch from ad hoc to formula-based fuel pricing methods. The UAE was the first GCC country to seriously reform its fuel prices. In August 2015, transport fuel prices were liberalized and linked to international market prices using price formulae. As a result, the price of gasoline increased by 25 per cent and diesel prices decreased by 29 per cent (IMF, 2015). Since then, international market prices have gradually risen, and UAE prices have followed this trend. Fuel prices have been liberalized for all actors, including industry and commerce.

Like many other countries, Oman first started raising energy prices for commerce and industry, before moving to residential consumers. It reformed fuel prices in the wake of Saudi reforms in January 2016 (Fattouh, Moerenhout, and Sen, 2016). At the same time, it introduced a new pricing formula that links Omani prices to prices on the international market and in the UAE. Since then, Oman has stuck to the formula and increased energy prices in keeping with international market price trends (Moerenhout, 2018). When reforming fuel prices, Oman also experienced opposition. In response, it twice installed a price cap and twice broke it. The government abolished the latest cap after introducing the National Subsidy Scheme, which provides fuel at a subsidized rate to less wealthy families.



Transport fuel prices (US\$/litre, June–July 2018)



Note: Gasoline 90/91/95/97 refer to the gasoline’s octane rating; world average is based on country averages

Like Oman, Bahrain, and Saudi Arabia, Qatar also revised gasoline prices in early 2016. In a very early move, Qatar had already reformed diesel prices in 2014 (by about 50 per cent for local companies but 75 per cent for joint ventures) (Walker and Kovessy, 2016). In May of the same year, the Qatari government announced plans to liberalize fuel prices and adjust them in keeping with international market price trends, regional price trends, and production costs—a move similar to the one taken by Oman and UAE. This plan was implemented as of June 2016, after which there were monthly revisions to the fuel price.

Ad hoc fuel price reforms

Saudi Arabia implemented significant energy pricing reforms in two stages in January 2016 and January 2018. In January 2016, the government reformed prices predominantly in reaction to the fiscal crisis resulting from the oil price drop. The Saudi government has targeted a full energy and water subsidy phase-out by 2020 under its Vision 2030 plan (IMF, 2016). While the first stage of reforms was successful without introducing compensation measures or public information campaigns, the second stage was only implemented after the launch of Citizen’s Account, a cash

transfer scheme (APICORP 2018). The 2018 reforms were implemented after delays linked to several factors: an increasing oil price, the roll out of the cash transfer scheme, and a decrease in the annual growth rate from 3.5 to 1.7 per cent. The Saudi government was cautious not to slow down industrial output. In its latest budget, it pushed back the target date for removing subsidies to 2025.

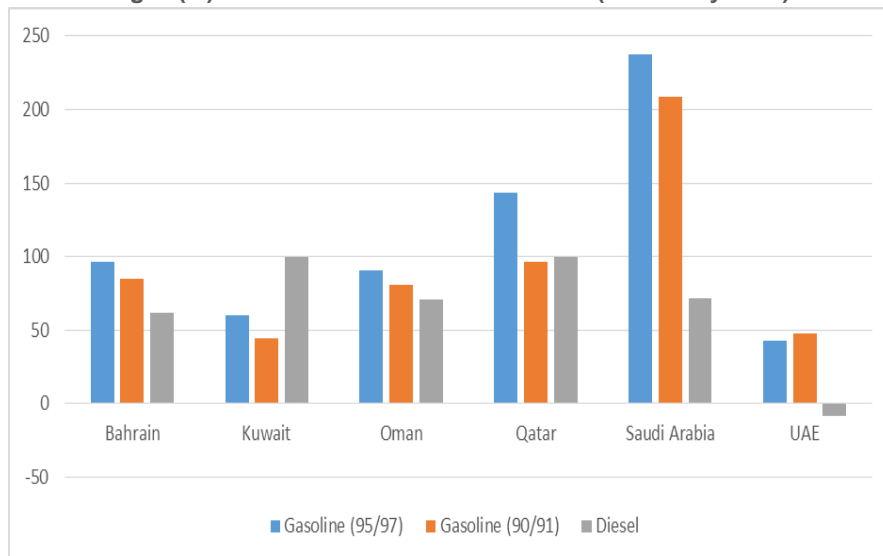
Like Oman, Bahrain took its first step towards energy pricing reforms by increasing natural gas tariffs for industrial users in March 2015. An earlier attempt to reform electricity

prices for residential users had failed due to opposition from members of parliament. Again, like Oman, it followed in the footsteps of Saudi Arabia in January 2016 and reformed fuel prices. It raised gasoline prices and planned for annual diesel price increases of \$0.05/litre. (Gasoline prices were not reformed annually, while diesel prices were.) Following Saudi Arabia, Bahrain implemented a second

round of ad hoc gasoline price increases in January 2018.

The Kuwaiti government increased diesel prices by 200 per cent in January 2015 but immediately had to scale this back to 100 per cent after parliamentary and other protests. Large (e.g. industrial) users continued to receive diesel at a lower price. In September 2016, the government implemented a gasoline price increase of about 70 per cent on average and combined this with a plan to revise prices in keeping with international price movements. After heavy protests

Price changes (%) Summer 2014 until after reforms (June–July 2018)



Note: Gasoline 90/91/95/97 refer to the gasoline’s octane rating; world average is based on country averages



and a legal challenge, the government was able to maintain its one-time gasoline price increase but dropped the plan to adjust prices periodically (Moerenhout, 2018). It is not planning any further price increases at this time.

Fuel pricing reforms in comparison and their effect on demand

In comparison with prices in other countries in the region, such as Jordan, and with average world prices, GCC country nationals are still able to buy fuel at some of the lowest rates worldwide. The UAE, Oman, and Qatar have higher prices than other GCC countries, even though Saudi Arabia and Bahrain have also invested heavily in cutting gasoline consumption.

It appears fashionable to conclude that countries in the Gulf still have a long way to go in terms of fuel pricing reform. Experiences in fuel price changes across the world indeed show that changes may be reversed in the wake of popular protest or changing international oil prices. This is of course no different in the case of GCC countries. That said, progress has been remarkable and has yielded substantial results so far, especially in terms of fiscal consolidation and lowering demand.

Average annual gasoline and diesel demand growth was around 6.2 per cent and 4 per cent, respectively, in 2010–2015 but slowed to 0.4 per cent and –6 per cent in 2016. It is, however, difficult to attribute this slowdown to pricing reforms, as economic output also declined over the last few years (APICORP, 2017, 3). In Saudi Arabia, gasoline demand levelled out even before the January 2018 reforms and diesel demand had already fallen 10 per cent. The latter can be attributed to the reduction in economic activity and the sourcing of more gas for power generation. In Oman, gasoline and diesel consumption fell by respectively 6.2 per cent and

7.2 per cent from 2015 to 2016. Unsurprisingly, given the relatively modest fuel price increases, the UAE has seen less demand reaction in recent years. On the contrary, fuel demand actually increased in 2016.

A trend, but not yet a norm

There has been remarkable progress on fuel pricing reform in the GCC on two fronts. First, three countries were able to implement formula-based fuel price adjustments and have so far stuck to revising fuel prices upward. Especially in Qatar, this has led to strong price increases over two years. Second, Saudi Arabia and Bahrain have proven that one-off reforms can be followed up again, especially with the introduction of mitigation measures. Of all GCC countries, Saudi Arabia has increased gasoline prices by far the most. Even if they had the lowest prices among GCC countries, the fact that GDP per capita is lower in Saudi Arabia, and a rentier mentality potentially higher, makes such adjustments all the more surprising.

Fuel pricing reform may not yet be a norm in the GCC. While one could pose the question whether it should be, given GCC countries’ comparative advantage in extracting and producing oil, it is difficult to deny that pre-reform prices were at an unsustainable level. They fostered skyrocketing demand growth, allocated resources inefficiently, and caused governments to forego significant revenue. It is encouraging that fuel price increases appear to be a trend. This has led to meaningful fiscal consolidation, adjusted some of the inefficient allocations and demand, and pushed countries to think more seriously about economic and social sustainability in their developmental visions. Most importantly, many GCC countries continued to adjust fuel prices even after the oil price started to recover. This shows a willingness, more than at any moment in the past

decade, to discuss the opportunity cost of domestic pricing schemes.

(The author would like to thank the Swiss National Science Foundation for their support.)

ECONOMIC DIVERSIFICATION AND JOB CREATION IN THE ARABIAN GULF: A VALUE CHAIN PERSPECTIVE

Martin Hvidt

This article seeks to answer two interlinked questions: What kind of jobs should Arabian Gulf societies aim to create in order to secure long-term growth? And how can these states encourage their citizens to work in the private sector? The article uses the concept of value chains to provide insight into the types of jobs that are likely to be most beneficial to Gulf countries’ development efforts, and the knowledge content of these jobs. It does not address Gulf countries’ participation in global value chains.

Value chains have most commonly been studied with the purpose of identifying opportunities for increased profitability for a given company, either by making each part of the chain more efficient, or by adding or deleting parts of the chain. The addition of parts to value chains holds significant implications for diversification. In the oil value chain, for example, moving from the production of oil into other activities, for example refining, diversifies the product (e.g. from crude oil into gasoline, naphtha, jet fuel, and kerosene).

The value chain perspective also holds significant implications for job content because different activities within a value chain require different skills and knowledge. Job creation and content are especially relevant for the Gulf states, for two reasons. First, these



states face a significant challenge related to job creation, due partly to the distributive economic model pursued since oil income first began to flow, and not least to the very high population growth rates. Over the next 15 years, more than 500,000 increasingly well-educated nationals will enter the working age in the six Gulf countries, and increasing numbers of these will actively seek employment (Hvidt, 2018, 17). Second, so far, the public sector in the six Gulf Cooperation Council (GCC) countries has provided jobs for nearly every national who wished to get at jobs. However, according to development plans and visions published in the region, this policy is expected to become increasingly unsustainable because rapid population growth will make the cost prohibitive, and all countries in the region now assign the responsibility for further job creation to the private sector.

Diversification. What is it and why is it of interest to research in the Arabian Gulf countries?

‘Diversification’ is defined in a variety of ways depending on the context. In political economy, it ‘normally refers to exports, and specifically to policies aiming to reduce the dependence on a limited number of export commodities that may be subject to price and volume fluctuations or secular declines’ (Routledge, 2001, 360). Within political economy, diversification can take place either horizontally (by seeking new opportunities within the same sector—e.g. mining, energy, or agriculture) or vertically (by adding more stages of processing of domestic or imported inputs). Vertical diversification encourages forward and backward linkages in the economy, as the output of one activity becomes the input of another, thus expanding the value-added produced locally.

Risk is the underlying issue in this

definition. Fluctuations in prices and demand are basic components of the world economy, and diversification is one of the options open to societies, firms, and individual investors to protect themselves from these fluctuations. The underlying logic of diversification is that ‘instability for any group of products tends to be significantly lower than for any of its constituents, indicating that price and volume stability gains are attainable from diversification’ (Routledge, 2001, 360).

As stated by Qatar’s General Secretariat for Development Planning, ‘A more diversified economy is inherently more stable, more capable of creating jobs and opportunities for the next generation and less vulnerable to the boom and bust cycles of oil and natural gas prices’ (GSDP, 2011, 10).

Diversification in the Arabian Gulf context

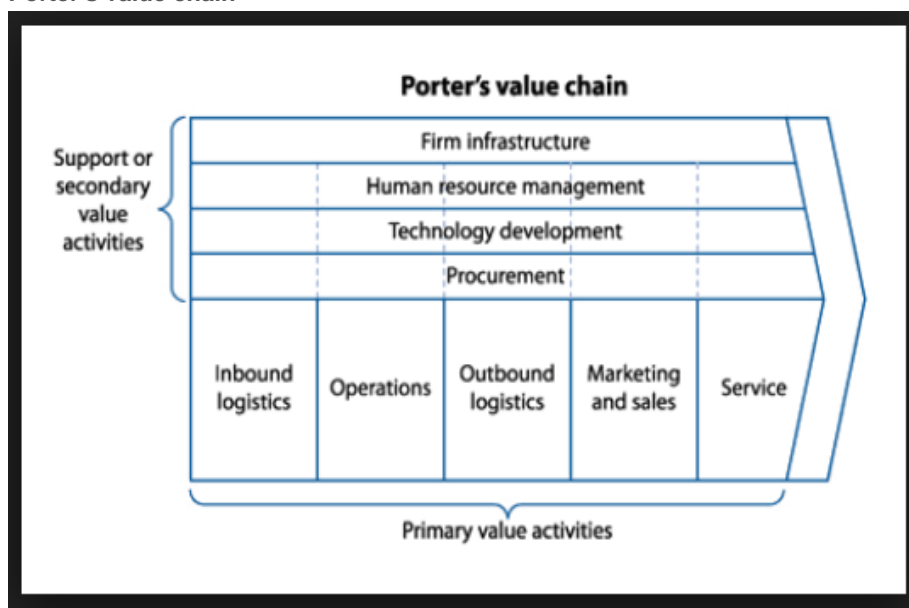
The distributive state model applied in all Gulf states remains highly dependent on the income from hydrocarbons. This model is state-led and state-driven, emphasizes wealth distribution, makes extensive use of

migrant labour, and, of most importance in this context, is characterized by a significant underdevelopment of productive assets, since oil seems to crowd out other economic activities, which leads to undiversified economies. This model worked well when oil incomes were high and populations small. Over the last decades, however, the model can be said to have failed to support further development of the GCC states in two important respects.

First, while it has provided significant incomes since the export of oil and gas first started, it has failed to generate a stable economy with predictable income for the population, due to highly fluctuating oil prices and lack of diversification. This has created an environment in which it is difficult to foster a dynamic private sector.

Second, it has failed to create sufficient job opportunities to accommodate the many new entrants to the job market. The 2014 oil price collapse—which by one stroke halved the yearly income from oil, and which led to substantial ad hoc measures to cut public spending

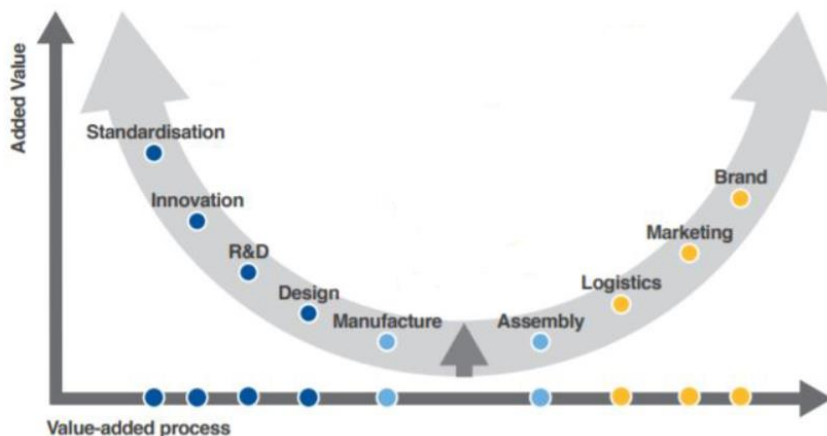
Porter's value chain



Source: Porter, M. (1998). *Competitive Advantage: Creating and Sustaining Superior Performance*, New York: The Free Press, 37.



The smiley-model



Source: The Shifting Geography of Global Value Chains: Implications for Developing Countries and Trade Policy. Geneva, Switzerland: World Economic Forum, p.21

The Smiley Model describes the magnitude of value-added at various stages in the value chain. The insight derived from this model is that production activities (manufacturing and assembly) yield the least value added (most likely due to the standardization of those processes, and thus exposure to high levels of competition), while the secondary activities—such as design, research and development, innovation, logistics, and marketing) yield high levels of value added. A classic illustration of this relationship is that the manufacturing cost of a jacket, that is the cost of all inputs (such as labour, materials, shell fabric, lining, buttons, and hangtag) only make up 9 per cent of the price of the final product; the secondary services and profit make up the remaining 91 per cent (Low, 2016, 13)

for services (for example hospitals), subsidies, and development projects—is a stark reminder that the countries have not yet succeeded in diversifying their economies and creating alternative sources of income. Vision 2030, launched in Saudi Arabia in 2017 (SACEDA, 2017) is an expression of the urgency of the diversification drive.

Economic diversification is, however, not a new strategy among the GCC states. It has been on the political and economic agenda since oil and gas became the main (and almost sole) source of income in these countries some half a century ago. Notable projects, such as aluminium smelting in Bahrain, the industrial cities of Yanbu and Jubail in Saudi Arabia, and the ports in Dubai were established in the 1970s with the specific aim of diversifying these economies by investing oil money in productive assets. Besides these, investments in education and health services has been ongoing. Lately development of a manufacturing industry to satisfy domestic needs (e.g. for poultry and dairy products and for construction

materials, furniture and household items) have been ongoing and most recently there has been the development of activities such as tourism, financial services, aviation etc.all with the purpose of diversifying the economies (Hvidt, 2013).

Value chains

The concept of value chains was introduced by Michael E. Porter in 1985. In 1998, he further developed the concept as a tool to analyse the sources of a firm’s competitive advantages. He defined a value chain as a collection of activities that are performed within a firm to design, produce, market, deliver, and support its products (Porter, 1998, 36).

The value chain displays total value, and consists of value activities (the physically and technologically distinct activities a firm performs) and profits. For companies that produce goods, the value chain starts with the raw materials that go into the product, and consists of everything added before the product is sold to consumers. Porter divided a business’s activities into two

main categories, primary and secondary, where the secondary activities are seen to support or serve the primary activities.

Building on this insight, but with a less rigorous division between primary and secondary activities, the Smiley Model of value chains was proposed by Stan Shih, the founder of Acer Inc. in 1992 (see Ye et al. 2015, 2).

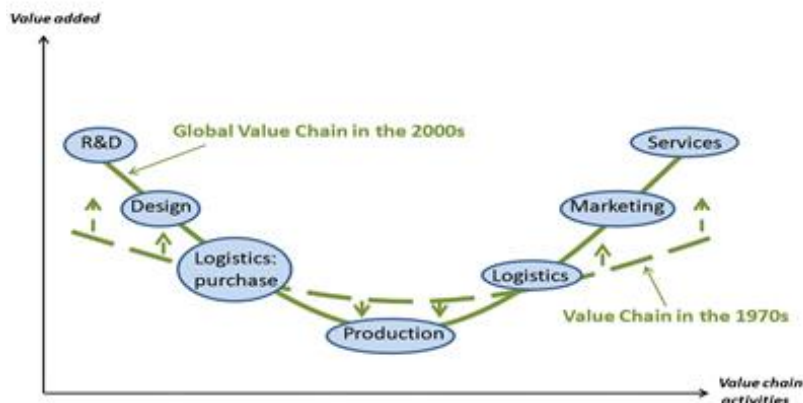
In the electronics value chain, the Smiley curve has attained a more pronounced U-shape over the last four decades. This indicates that the gap between the value added produced by manufacturing activities and that produced by innovation and marketing activities is growing. If this is a general trend, it provides even further incentives for the Gulf states to emphasize job creation in the services part of the value chain.

Value chains and job creation in the Gulf

The labour markets of the GCC countries have a dual nature: Nationals, as a part of the social contract, primarily seek employment in the public



Smiley curve for the electronics value chain, 1970s and 2000s



Source: de Backer, K. (2013). “Interconnected economies: benefitting from global value chains – the Czech Republic”, Presentation given at Conference of Economic Counselors, Prague, 25 June 2013, Slide 16.

attractive to nationals. In all Gulf states, there are policies, with names such as Emiratisation, Omanization, and Saudization, that aim to pressure or encourage nationals to take jobs in the private sector. One such initiative is the drive to localize production. For example, Saudi Arabia aims to localize 50 per cent of defence spending and 75 per cent of the oil and gas industry, meaning that all inputs should come from local sources and that a very high percentage of the higher-skilled jobs within these sectors should be taken by Saudi nationals (SACEDA, 2017).

Other measures to localize labour include quotas for employing nationals within various categories of private-sector firms (e.g. the Saudi Nitaqat system) and restriction of certain job functions to nationals only. For example, in January 2018, the Saudi government announced it would add to its growing list of Saudi-only jobs by including the sale of watches, eyewear, medical equipment and devices, electrical and electronic appliances, auto parts, building materials, carpets, cars and motorcycles, home and office furniture, children’s clothing and men’s accessories, home kitchenware, and confectionery (Young, 2018, 17). Such policies are implemented cross the six countries, but primarily in the three countries with the highest unemployment figures for nationals: Saudi Arabia, Oman, and Bahrain.

Besides the obvious point, that it is positive for the national economy if jobs are filled by nationals rather than migrant workers, who usually transfer a substantial part of their wages out of the country, employment localization efforts should be seen as a long-term strategy of ‘upskilling’ national labour forces to undertake high-end jobs in the private sector.

Conclusion

Instead of viewing diversification in a narrow sense, as economists often do,

sector, which is better paid and offers more job security and shorter working hours than the private sector (McKinsey, 2015). Private-sector employment is also more competitive and meritocratic and takes place in a mixed-gender environment, which might present a cultural challenge to segments of the national population (Ulrichsen, 2018, 12ff). The key reasons for this are that the private sector consists overwhelmingly of low-skilled jobs and state policies permit the sourcing of cheap migrant labour. As such, private sector employment is less attractive to nationals.

A recent World Bank report argued that to make private-sector jobs more attractive, salaries must be increased, and that this should be done through reforms that increase the productivity of the private sector by shifting economic activity to ‘higher value-added sectors, more technology-intensive production, diversified and more sophisticated exports, and technology-driven foreign direct investment’ (World Bank, 2017, vii). An International Monetary Fund report documented that productivity gains in the GCC countries have contributed relatively little to growth since 1970. Rather, growth has been attributable to ‘hiring more hands’, not

to capital or total factor productivity (IMF, 2017, 26)

The inclusion of more nationals in the private sector is a contentious subject, which relates not only to the salaries paid but also to the motivation, willingness, and ability of nationals to take private-sector jobs (World Bank, 2017, vii).

Regarding educational qualifications, will nationals be able to compete with imported skilled workers? A review of the available indicators of educational achievement in the GCC countries highlights structural problems within and around the educational system that lower the quality of teaching, minimize research outputs, and lessen the usefulness to society of the education provided. In this respect, it is questionable how well the current system prepares graduates to play an active role in a future knowledge economy (Hvidt, 2015). At the international level, a link has been found between high incomes from natural resources and lower political emphasis on education (Gylfason 2001).

A second issue relates to the likely success of the political initiatives to make private-sector employment



measuring it by the percentage of exports from non-oil sectors, the value chain perspective as applied in this article focuses on the type of jobs that diversification policies are attempting to create and the knowledge content of those jobs.

This leads to the understanding that it is not important whether a new economic activity is within or outside the oil sector, but whether the jobs created by the activity are in a low- or high-value-added segment of the supply chain.

High-value-added jobs have, as this article has demonstrated, a much larger potential to generate income and thus to attract workers from the national labour force. They also have a much larger development potential, in that jobs with high skill levels and knowledge content increase a country or a firm's ability to quickly adjust to new and changing demands in a rapidly changing world. As pointed out by Bremmer (2018), not only are the profits larger in technology-driven sectors, but in the next decade the world will experience an even higher rate of technological change than in the previous decades. Artificial intelligence, robotics, and machine learning have now reached a stage where they can be applied profitably across sectors. This will transform the job market, placing an even higher premium on the jobs that develop, interact with, and control digital processes. The Smiley Curve is likely to attain an even more pronounced U-shape, thus leaving countries and sectors that do not pursue technological upskilling behind. As a recent study pointed out (UNIDO and WEF, 2014), today, the competitiveness of nations has less to do with decreasing costs (e.g. of production or transactions) and more to do with harnessing added value by improving capabilities.

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IS THERE A FEASIBLE SOFT LANDING FOR SAUDI ARABIA'S ECONOMY?

Ishac Diwan

With a rising population, and oil prices expected to fall over time as interest in climate change increases, the rentier mode of development followed by Saudi Arabia is clearly unsustainable. On this most analysts agree. But once this model collapses, what could replace it? Here, pundits are deeply divided: some believe that the inadequacies of the model will necessarily lead, sooner or later, to a doomsday scenario of instability and pauperization; others advocate a move from the current mono-sector economy to a modern and diversified knowledge-based economy, OECD-style.

This confusion in the economic discourse about the kingdom has its source in the unusual structure of its labour market. The steep dualism between expatriates and national workers is unique among large countries. The main problem with the current economic system is that under it, nationals are simply not employable in large numbers in the private sector. And the main challenge to building a better future is to find ways to employ them productively.

Doing so would greatly boost growth and may be the only source of growth that is currently readily available. It would also save on the foreign exchange now being remitted by expatriates abroad, reducing the need to produce tradables besides oil. While the current labour arrangements create a heavy disincentive to nationals joining the labour force, huge gains could be made if they were instead encouraged to do so, because Saudi nationals are both grossly underemployed and increasingly well educated, thus

increasing the opportunity cost of low participation. Currently, only 40 per cent of working-age nationals participate in the labour force (but only 35 per cent work as the rest are unemployed). This compares to labour participation rates of about 60 per cent in the OECD. Low Saudi participation rates are largely due to very low participation by women (19 per cent), but men's participation (55 per cent) is not high by international standards either.

To give a sense of the potential gains if national labour was employed more effectively, a simple projection model suggests that with participation rates growing from 40 per cent to 60 per cent of the working-age population, and unemployment dropping to its natural rate, non-oil national income would more than double if the additional workers join the non-oil sector at current productivity levels. Improvements in labour productivity would add to this growth rate further. Altogether, it can be estimated that this addition to national wealth is comparable in magnitude to the kingdom's current oil wealth (Diwan, 2018).

To create the conditions needed for the full employment of Saudi nationals, the current growth model needs to be deeply reformed. This model rests on two pillars: businesses' free hand to import labour from abroad, and a guarantee for citizens of public-sector jobs and lifelong support. With its current population of 23 million, and oil revenues of only \$6,000 per capita, Saudi Arabia has clearly outgrown the current arrangement. The government is no longer hiring all Saudis who are willing to work. Already, unemployment is officially at 11.6 per cent overall, 32.8 per cent for women, and 29.4 for youth, and rising. Oil rents are not sufficient to finance anything close to current consumption levels for the population,



and this can only get worse over time in the absence of a new source of growth.

If the current system of incentives does not change, and the economy continues on autopilot, dwindling oil revenues will provide less income to nationals. The oil shock of 2014, coming on the heels of a post–Arab Spring fiscal expansion, caused a large deficit in the government budget. But the problem is not just fiscal sustainability. The kingdom can borrow abroad and sell assets to theoretically finance at least 10 years of deficits at the current level before going bankrupt, which allows it to kick the can down the road for a while, as typical of regimes built on oil (Karl, 1997). But if cheap labour continues to be freely imported in the meanwhile, Saudi reservation wages will only fall slowly over time, and Saudis will continue to shun working in the private sector until they become much poorer. In such an ‘Algerianization’ scenario, the kingdom would turn into an increasingly impoverished welfare state, with rising unemployment (or low labour force participation) and rising income inequality; business owners would continue to enrich themselves by importing cheap expatriate labour, while the rest of the population would gradually become poorer. Governance, which has relied largely on the co-optation of citizens, would have to become more repressive, as has happened in the countries of the region with smaller oil endowments and larger populations such as Iraq or Algeria (Cammet et al., 2019).

While an important risk is that the government may just delay consideration of serious reforms, an even greater risk is that its existing fiscal space may enable it to buy into a costly pie-in-the-sky project. One overly optimistic scenario recommends that Saudi Arabia become a sort of Dubai on steroids, with Saudi youth managing

a large population of migrant workers in a super-competitive economy driven by private initiative and serving as a bridge between East and West. Vision 2030, which embodies these aspirations, has been equally celebrated and criticized. This scenario is unrealistic in its assumptions about how much can change quickly. A more realistic projection, given the country’s starting point, is that it would take several generations to extricate itself from dependence on oil through diversification.

While the more pessimistic scenario is the more likely of the two, both fail to present a reasonable vision for the country’s next 20 years, when oil revenues are likely to remain sizable but not sufficient to sustain the current model of development. Saudi Arabia can no doubt do better than commit economic suicide. Unlike other oil countries, it has invested heavily in assets and skills, and its business and political elites have too much ‘skin in the game’ to sit back and allow a catastrophe to unfold in slow motion.

It must be evident to many Saudis that it is high time for the productive structure (if not the polity) to adapt to the new realities. The country’s human and real assets have changed profoundly in the past 50 years. While importing labour to build the country made sense in the past, there are now large cohorts of educated Saudis graduating and aspiring to productive employment. The situation is thus profoundly different, and it requires profoundly different economic incentives. The massive import of foreign labour was a response to an exceptional situation, unseen in these proportions in any other country at any other time. This period has now to come to an end.

To employ its youth gainfully, Saudi Arabia now needs to become a ‘normal’ oil economy—like, for example,

Norway—that exports mostly if not only oil, but that derives national income from the work of its own population, primarily in the service sector. In this model, Saudi workers would replace expatriates, largely in service jobs. The economy would remain dominated by oil; a large share of the Saudi labour force (say half) would remain employed in government; and many public-sector firms would continue to play an important economic role, employing specialized Saudi workers in the oil, health, academic, telecom, and finance industries.

But the new jobs would largely be in high-productivity occupations in the service sector. Except in a few areas of comparative advantage, not many firms would produce globally competitive tradables; those that do so now would be unlikely to survive given that unskilled wages would rise, capital would come at a higher cost, subsidies would be cut, and taxes would be introduced. At best, a few tradable sectors could thrive, such as religious tourism and sectors with close linkages with petroleum.

At the end of this transition, millions of expatriates would have returned to their home countries, having provided a vital contribution to the task of building up a modern country at record speed. The Saudi economy would become smaller, but it would employ a large share of its own population productively—it may have a lower GDP, but it would have a larger national income. Oil would remain central, but it would have a much larger multiplier effect in terms of the domestic employment of nationals.

The main economic challenge of the transition to a normal economy is to create productive jobs for nationals. It is easy enough to create high-paying jobs—in the public sector, including the security forces, or by replacing migrants in labour-intensive private-sector occupations. But the first option



(creating new public-sector jobs) would expand fiscal deficits unsustainably. The second option (replacing expatriate workers with nationals) can deliver high wages in the nontradable service sector if the total number of migrant workers is reduced sharply. But unless productivity rises too, this would be reflected in higher nontradable prices, eroding standards of living.

The good news is that the education level among young Saudis has risen, which makes it possible for them to occupy jobs at relatively high productivity levels. The bad news, however, is that existing incentives have pushed firms in the private sector to create jobs that require either very low skills (especially in services) or very high skills (especially in the energy sector). The challenge of creating jobs that are attractive for Saudis, who have mostly mid-level skills, is to create incentives for structural change in the production methods used by private firms. Ideally, a new cohort of small and medium-size enterprises (SMEs) should emerge that pay sufficient wages to attract Saudi workers, by investing in more capital- and skill-intensive production methods, and by training their workers to improve their productivity.

There are two types of economic challenges to such a scenario (and a multitude of political-economic ones). First, there is a large reform agenda needed to create a more dynamic private sector. To encourage innovation and growth, there is a well-known need to substantially improve the business climate and to increase access to credit. The labour market would have to become much tighter, with constraints placed on the total number of migrants in the country — and not just firm-level quotas that are poorly applied, as is the case now. To help SMEs quickly adjust to the new input price structure, more targeted industrial policies would be

needed. The key challenge would be supporting the transformation of whole sectors—reforming the construction industry so that it can move from its current labour-intensive techniques to more capital- and skill-intensive methods, or helping to create new SMEs that cater to a world where housework is three to four times more expensive, by creating substitute services in the transport, cleaning, child-care, and food sectors. These new SMEs would have to change the current labour-intensive way of doing business. Their rise would need to go hand in hand with the (creative) destruction of the old inefficient firms, so that the new firms can increase their market shares. In the absence of supporting policies, there is a risk of migrant jobs disappearing but being replaced with only a limited number of jobs for nationals, as has been observed in the Saudization policies followed so far (Hertog, 2014; Peck, 2017).

Second, at the macro level, the required new investments would generate large new financing needs. To create about 1 million jobs every five years would require investment of \$0.5 to 1 trillion over 10 years. These funds would have to come from the national banking and financial sectors, foreign direct investment, or public funds. At the macro level, this would create a trade-off with the speed of adjustment. Large amounts of public financing of deficits would crowd out funds needed to finance private-sector investment. Given that the private investment required for a successful structural reform strategy is large, there is also a global finance trade-off. It would not be possible to wait 10 years to adjust, while at the same time creating 1 million good new jobs. Slowing adjustment too much would constrain how much can be invested to upgrade jobs and productivity.

Underlying these economic complexities are a multitude of political-economic challenges to the establishment of a ‘normal’ Saudi economy. The economic elites would want to keep their privileged access to cheap foreign workers. They would claim that most Saudis’ education and attitude are not favourable to their employment. National workers will resist a reduction in their reservation wage, claiming that it is the responsibility of the state to protect their consumption level. But in the end, all citizens know that the current model is not sustainable, and a smart set of reforms could manage to build a cooperative national strategy aimed at the creation of an efficient enough private service economy. The perception that the costs of reform are fairly shared by all groups will be essential. To build support for reforms, it does make sense for the state to try to smooth out the initial consumption drop by only lowering the fiscal deficit gradually, at the speed at which the private sector picks up steam in creating jobs for nationals.

The deeper question is whether the Saudi elite and society can coalesce around a reasonable vision for the future of their economy, avoid the risks entailed by excessive optimism, and muster the courage to support the needed reforms before it is too late.

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IN THE SPOTLIGHT: DEMANDS ON SAUDI ARAMCO ARE INCREASING

Steffen Hertog

The Saudi government’s plans to launch an initial public offering (IPO) of 5 per cent of its national oil company, Saudi Aramco, have pushed the previously discreet oil giant into the international spotlight. But its plans for a public listing are not the only way in



which the company has become more visible: It also has been taking on increasing non-oil domestic development tasks, has acquired growing international investments, and is set to indirectly raise significant debt for the Saudi government. Aramco is set to play a more prominent role not only in international hydrocarbons and downstream business, but also on international financial markets—even if, as recent signs suggest, its IPO might not happen.

Saudi Aramco's prominent national role reflects its capabilities and gives it considerable political capital. It also comes with significant noncommercial obligations, however, which often are not of its own making. So while the kingdom's ambitious industrial diversification agenda provides Aramco an opportunity to shine, it also pushes the firm into a more complex political environment and requires it to operate in theatres that it is less familiar with.

This research note reviews Aramco's political history and position in the Saudi system and discusses its growing role outside the upstream sector, including in industrialization. This is followed by a discussion of political changes under the new Saudi leadership that have, among other things, led to the IPO plans and a large industrial restructuring plan under which Aramco is planning the debt-financed acquisition of a majority stake in national petrochemicals giant SABIC (Saudi Basic Industries Corporation).

Saudi Aramco's position in the Saudi system

Saudi Aramco has been a critical agent for the social, economic, and infrastructural development of Saudi Arabia. Its managerial capacities are unrivalled in the kingdom and the Gulf region, and its range of tasks and ambitions has recently expanded into a number of new policy sectors. This presents opportunities but also risks for

Aramco, which has started to operate far outside of its traditional turf of running the upstream oil and gas sector in the kingdom, and is now involved in activities that are more political and more closely scrutinized by the Saudi public.

Saudi Aramco has not only been in charge of the assets that generate more than 85 per cent of Saudi exports and more than 80 per cent of recurrent government revenue. Since its creation as an American concessionaire in the 1930s, it has also helped build important parts of the local private sector through its contracting efforts and local business development programme. It has played an important part in building Saudi infrastructure, especially in the strategic Eastern Province, and in training an advanced industrial and managerial workforce. Many former Aramcons have used their experience with the company to join the ranks of Saudi entrepreneurs, and in recent years, senior government technocrats too have increasingly been recruited from Aramco's ranks.

Different from other national oil companies, Aramco was taken over from its original US owners in the 1970s in a comparatively smooth fashion. It has retained its American corporate culture although it has been 100 per cent government-owned since 1980 and is run mostly by Saudis. It is now generally ranked as the most efficient national oil company among all OPEC countries—making it, in the eyes of Crown Prince Mohammad bin Salman, an attractive target for an IPO.

Saudi Aramco has historically retained a rather [high level of operational autonomy](#) since becoming state-owned. It has also retained considerable cultural autonomy and remains an enclave in whose compounds genders are allowed to mix and where women were allowed to drive long before the recent decree giving this right to all

Saudi women. While the company discloses little information—a stance it has arguably developed as a self-defence mechanism—it is generally seen as the most efficient part of the Saudi public sector. Senior royals have been instrumental in protecting it from predation or meddling by either the national bureaucracy or the wider ruling family.

Saudi Aramco remains the preferred employer of a large share of young and ambitious Saudi graduates; its managers and engineers are held in high esteem in the international petroleum business. From about the 1970s on, however, it lost some of its pre-eminence in national development. While in the 1950s and 1960s it built national infrastructure and provided electricity services and education, the rest of the state apparatus grew rapidly with the post-1973 oil boom and could take on new public service tasks, taking some pressure off Aramco.

This trend has reversed in recent years: While the Saudi state has continued to grow, policy challenges have grown even faster, and Aramco once again is at the forefront of social and economic development outside the hydrocarbons sector. This is partially an outcome of higher oil income and increased demands on the part of government and the royal leadership, but also driven by a more assertive vision of the company's role developed under Khaled Al-Faleh, chief executive officer from 2009 to May 2016, and minister of energy since then.

The list of new projects, sectors and tasks has grown exponentially during the last decade however. Aramco has decided to expand strongly into petrochemicals through world-scale joint ventures with Sumitomo and Dow. According to Al-Faleh, planned investment amounts to \$60 billion, and the ambition is to be among the top three petrochemicals companies



worldwide. Aramco has also stepped up its refinery-building programme and aims to become the world's largest refiner with a total capacity of 8–10 million barrels per day. It has invested in a range of downstream joint ventures overseas, with a primary focus on Asia. It has also started to invest in renewables technology—on a much smaller scale, but with potentially strategic long-term impact given the kingdom's ambitious renewable energy plans. It has become much more active in pushing its contractors into producing industrial inputs for its large operations locally through its In-Kingdom Total Value Added programme.

Aramco is also trying to redefine its role in its upstream core business. While it generally has been a capable consumer of international technology, it now wants to become a technology leader; it has invested heavily in research and development capacity, building partnerships with international universities and research centres in Houston (Texas), Massachusetts, and Saudi Arabia. Its new technology venture capital arm, Saudi Aramco Energy Ventures, has identified Norwegian partners with which it will invest up to \$120 million a year in European start-up companies. The company also set up its own commodity trading arm in January 2012, and is building a \$5.2 billion shipyard through a joint venture with foreign partners.

Of potentially greater importance for the kingdom's future, the company is also becoming increasingly involved in industrial development outside of hydrocarbons and heavy industry. The government has asked it to be the lead agent in developing Jizan Economic City, a struggling project in Saudi Arabia's underdeveloped south built around a refinery for which no private investors were found. While the Jizan project might have been imposed on

the company (and requires commercially questionable shipping of crude around the Arabian Peninsula), Aramco also proactively pushes for the development of downstream manufacturing through industrial parks attached to its large petrochemicals projects with Dow and Sumitomo. Together with the Ministry of Energy, it also attempts to push national industrialists—who rely on Aramco's cheap gas and oil products as feedstock—away from basic petrochemicals and energy-intensive manufacturing of basic building materials towards higher value-added production.

The company has also stepped up its support for Saudi small and medium enterprises and entrepreneurs through a variety of training and financing initiatives. While its own workforce remains comparatively slim—65,000 employees in 2016, a fairly small number by the standards of large OPEC producers—its role in training has become huge. It invests considerably in internal staff development, with more than 3,000 industrial workers in training in 2012 and more than 1,000 Aramcos studying on scholarships in the United States.

The need to accommodate these new graduates appears to be a core concern for policymakers and drives some of the activism pushing Aramco into new business fields. The training programs also reflect a renewed commitment to shaping the kingdom's young managerial elites, which had been somewhat thinned out in the austere 1980s and 1990s when resources for overseas scholarships dwindled.

Outside of employee training, the company has launched a 'youth enrichment' programme in cooperation with various local organizations under which 2 million Saudis are supposed to

be trained by 2020. The late King Abdullah also tasked Aramco with setting up the King Abdullah University of Science and Technology from 2009 on, a selective graduate institute with an endowment of \$10 billion (which initially was outside the control of the Ministry of Higher Education).

Finally, Aramco is trying to grow its broader policy research capacity: In 2008, it was put in charge of the King Abdullah Petroleum Studies and Research Center, a national energy think tank. At the same time, it has been building an internal economic and energy research department to assist in defining its national development role.

Saudi Aramco is the most capable organization in the kingdom. On an individual basis, for many of the development tasks it has taken on (or been charged with), it is indeed a good choice. The question is whether the breadth of these combined tasks might become overwhelming, dilute the managerial focus of the company, and lead to a 'mission creep' of ever-expanding follow-up tasks.

The answer to this is not obvious, but it is a question to keep in mind when watching the company over the coming years. When Aramco was tasked with the building of a stadium and sports city in Jeddah in 2009—with other government agencies apparently perceived as not up to the task—some observers already wondered whether it was being turned into a surrogate government. Probably for the first time in the company's history, opinion pieces in the local press commented on Aramco's tasks and, in some cases, questioned its performance.

Adding complexity: IPO and SABIC acquisition plans

Adding a further layer to Aramco's strategic and governance challenges, Crown Prince Mohammad bin Salman in 2016 instructed the firm to prepare its



own 5 per cent IPO. It is not the only instance in which he has exerted more immediate control over the corporate strategy of a firm used to an arm's-length relationship with government.

Aramco has historically been isolated from royal politics: Different from some other Gulf monarchies, no royals hold any senior positions in the firm. Minister of Energy Khaled Al-Faleh, himself a former Aramco man, is also a commoner, as were his all predecessors. While princes have been deputies in the Ministry of Energy, their portfolios have been clearly delimited and they tend not to get directly involved in company affairs. Before Mohammad bin Salman's emergence as key economic policymaker in 2015, most policy research and strategic proposals emerged from within Aramco to be merely ratified by a Supreme Petroleum Council chaired by the king. The Ministry of Energy itself relies heavily on Aramco for research and remains a comparatively slim institution with limited autonomous capacity.

Mohammad bin Salman has disrupted this status quo on several levels: In early 2016, the Supreme Petroleum Council was disbanded and replaced by a Supreme Council for Aramco under the prince's chairmanship—indicating a more direct involvement in the firm's strategy and, given that Aramco also has a conventional corporate board with independent directors, creating an unusual two-tier board structure.

Around the same time, the crown prince publicly mused about the option to IPO parts of the firm in an *Economist* interview. At first, many observers in the energy world did not take this statement seriously, but since then IPO plans have firmed up and been made official. Used to full operational autonomy and secrecy, most Aramco executives have been unhappy about the IPO idea, but had little wherewithal to directly confront the leadership over it.

The IPO can be seen as a quasi-fiscal operation: The government hopes for a valuation of \$2 trillion, so that a 5 per cent IPO would yield liquid revenue of \$100 billion. Such money is needed for the various investment schemes of the Public Investment Fund (PIF), the crown prince's preferred vehicle for both overseas acquisitions and local diversification projects. The PIF, run by Yasir Al-Rumayyan, has significant but mostly illiquid assets. It has made large commitments to invest in Softbank and Blackstone funds internationally, and to build various large-scale tourism and entertainment projects as well as the robot-run city Neom in the kingdom. Directly financing the projects out of government funds would inflate deficits at a time when the kingdom is keen to convince foreign investors that it can balance its budget by 2023.

The IPO plan has [run into difficulties](#), and some observers doubt that it will ever happen.

In the course of preparation for the IPO, the Supreme Council for Aramco—incompatible with modern corporate governance—was disbanded again and replaced by a cabinet-level Higher Committee for Hydrocarbons in 2018. Yet concerns about potential political intervention in the firm remained. Further roadblocks to the IPO include the potential legal liabilities that come with a Western listing, the difficulty of separating Aramco's core business and accounts from the various non-core activities undertaken at the government's behest, and the struggle to get close to the \$2 trillion valuation. The Aramco technocracy has used all of these issues to convince the leadership of the difficulties of the proposed IPO. Recent reports that the IPO is off the table were not publicly denied for several months until the crown prince indicated in October 2018 that the target date was now late 2020 or early 2021.

Yet the PIF is capital-hungry, and despite elevated oil prices the kingdom remains under tight fiscal constraints: The International Monetary Fund estimated the fiscal break-even oil price for 2018 at \$83.4 per barrel. Official deficit reduction targets are at odds with large project spending plans. At the same time, the kingdom has been under strong pressure from the Trump administration to keep a lid on oil prices in the wake of the renewed Iran sanctions.

Advisors around the crown prince have therefore devised a new idea to raise funds outside the government balance sheet—and once again through Aramco. In July, it became known that the firm was preparing the acquisition of a majority stake in petrochemicals producer SABIC, the kingdom's second largest firm, which is currently 70 per cent PIF-owned. The purchase, which could set Aramco back \$50–70 billion, is expected to be mostly debt-financed through a large international bond and bank loans. If the bond issuance happens, it is likely to be one of the largest in the history of emerging markets.

The transaction would not affect the government's own fiscal figures, yet would enable public spending through the PIF, which would receive huge liquid funds from Aramco. Aramco technocrats again do not appear to be happy about the plan, but are likely to go along: It is a less fundamental intervention than the IPO and potentially, in practice, a substitute for it. It is easier to pull off from a technical perspective, not least as Aramco has already undertaken significant private international borrowing and issued a domestic Islamic bond last year, at only a slight premium to sovereign debt and with minimal disclosure.

In the long run, quasi-sovereign borrowing through Aramco is likely to crowd out sovereign bonds issued by



the central government. In the short run, given Saudi Arabia’s modest debt level (below 20 per cent of GDP), the market will be large enough to absorb both Aramco debt and moderate government borrowing. Aramco will need to disclose more financials for the bond issuance than it has ever done before, yet given the company’s cash flow and operational track record, investors are likely to demand less transparency than they would if they were obtaining equity in the firm.

Outlook

Aramco now has important and visible stakes in industrial diversification, domestic energy reform, national employment and entrepreneurship, and secondary, vocational and higher education. It has become a political player, but it is not run by politicians: Most of its senior management below the topmost level are primarily engineers, instinctively careful and probably lacking the appetite to get involved in more controversial policy fields, or the experience to defend the company’s interests publicly. Aramco will in the end fall in with the wishes of the political leadership—while tweaking their implementation to protect the firm.

Even in its core mission, Saudi Aramco will have an ever tougher task. The window of acceptable oil prices is becoming ever narrower. It is constrained from the bottom by increasing spending needs: Although the fiscal break-even is somewhat lower than it was two years ago, it is likely to remain around \$80 per barrel due to planned spending growth. It is constrained from the top by the need to placate the United States as well as concerns about reactivating shale investment and triggering demand destruction through high prices. The danger of an ever narrower price window has become real: According to Wood Mackenzie, the break-even price for US shale producers was \$52 in

2017. This was expected to drop to \$44 in 2018. At the same time, demand destruction becomes a threat at oil prices exceeding \$80.

The Saudi economy remains deeply oil-dependent and hence dependent on Aramco. The company’s debt operations will provide some temporary fiscal space for government, but Aramco will remain in the spotlight and under pressure from various sides.

Saudi Aramco remains by far the best national oil company in OPEC. Yet it faces new risks of domestic overstretch and new complexities of governance through the IPO and SABIC acquisition plans. The company has an unparalleled track record on building and managing large physical infrastructure. It remains to be seen how astute its engineers are in navigating the treacherous waters of industrial policy that it has been involved in more recently. It is too important an asset not to be used for diversification, but it will come under closer local and international scrutiny as a result. One of Aramco’s core strengths has always been to be perceived as separate from politics in Riyadh (and indeed, parts of its management are blissfully unaware of the goings-on among Riyadh-based elites). This stance will be harder to maintain as Aramco takes on more government tasks and becomes more visible through large-scale industrial and debt transactions.

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CLIMATE STRATEGY IN SAUDI ARABIA: MORE CRUDE, LESS COMBUSTION

Jim Krane

The threat that climate action poses to hydrocarbon rents is bringing about two policy shifts in producer countries. First, national leaders are finally getting

serious about diversifying economies into non-oil enterprises, despite comparatively lacklustre prospects for profitability and rents. Second, policymakers are simultaneously protecting and enhancing the competitiveness of state-owned oil industries.

The two strategies appear compatible. Diversification has been among the perennial recommendations of multilateral institutions. The urgency is heightened by climate policy and the possibility of long-term reduction in oil rents’ contribution to the state’s fiscal revenue. Diversification may be unattractive to a low-cost oil producer, but it is more attractive than standing by as the economic mainstay of the state is whittled away. The second strategy—the subject of this article—has policymakers taking steps to protect the flow of oil and gas rents from climate action, by seeking ways to preserve market share for oil in general and by creating preferences for national supplies of crude oil as differentiated from grades produced by other countries.

In the past, low-cost oil producers like Saudi Arabia responded to international climate negotiations in ways that ranged from noncommittal to obstructionist. Recently, Saudi Arabia has adopted a more nuanced and sophisticated climate strategy, driven in part by national oil company Saudi Aramco, which has played a leading role in the kingdom’s approach to climate change. Several Aramco employees are on the Saudi climate negotiating team, which is under the control of the Ministry of Energy, Industry, and Mineral Resources. One member is an acknowledged author of the 2018 Intergovernmental Panel on Climate Change report. Deep involvement in global climate policy may have helped Aramco design a strategy that could preserve its role,



and that of crude oil, in a future global economy beset by restrictions on fossil fuels.

Some of the strategies that Saudi Arabia has developed alter the nature of its future participation in the oil business. From simply supplying crude oil, the kingdom is increasing its involvement in refined oil and gas products, as well as in import markets and oil-consuming technology. Three of these strategies are discussed below.

Strategy no. 1: ‘dig in’—reduce the vulnerability of the oil sector to climate action

Saudi Arabia finds itself on the front lines of climate change in several ways: as a major fossil fuel consumer and greenhouse gas (GHG) emitter, as the world’s largest commercial source of GHGs (Saudi Aramco’s oil and gas production is behind roughly 4.3 per cent of current global GHG emissions—Mayer and Rajavuori, 2016), and as an early victim of climate damage through extreme temperatures.

However, to national oil company executives, the default concern about climate change tends to be the indirect threat posed to oil demand and exports, rather than the direct threat to habitability of the national territory. As a result, national policymakers have been ‘digging in’ in various ways to protect their economies against the aims of GHG accords such as the 2015 Paris Agreement.

Petrochemicals and noncombustion uses for crudes

Conversion of unburned crude oil and natural gas into chemical products may be Saudi Aramco’s most promising climate hedge. Chemicals represent a growing ‘climate-proof’ use for hydrocarbons, through which oil and gas feedstocks are converted into precursor resins and polymers that form the basis for finished products ranging from plastic auto components to foam cushions, paint, and even toothpaste. As in the manufacture of lubricants, the carbon from oil and gas is sequestered in the finished product—rather than released upon combustion, as is the case with gasoline and other fuels.

Saudi-based companies have made major investments in petrochemical plants, including the \$20 billion Sadara joint venture with Dow Chemical, the largest single-phase chemical plant ever built. Demand for plastic goods is closely correlated with GDP growth, with large markets emerging in developing countries where populations are moving into the middle class.

Differentiating among crude oil grades by carbon intensity

Saudi Arabia also seeks to leverage a competitive advantage of its crudes: their low upstream carbon intensity. Carbon intensity of crude oil varies substantially from country to country, and Saudi Arabia is among the very lowest emitters of CO₂ per unit of oil

extracted, about 3.5 g of CO₂ equivalent per megajoule (MJ) of oil produced, according to a paper in *Science* (Masnadi et al., 2018a). In the highest emitters, Algeria and Venezuela, upstream emissions average more than 20 g CO₂/MJ. Low upstream emissions in Saudi Arabia are due to the low levels of energy expended in lifting crude oil from the reservoir to the surface, and in processing and transporting it. Minimized associated gas flaring in Saudi Arabia and some of its neighbours, such as the United Arab Emirates, Qatar, and Kuwait, also contributes.

Other neighbours, such as Iran and Iraq, flare gas at high rates, which increases the carbon footprint of their crudes. Gas wasted during the US shale boom has turned the United States into another flaring front runner, raising the average carbon intensity of US oil to 12 g CO₂/MJ, above the global average of 10.3.

Given such a timely advantage, Saudi Aramco has begun highlighting the low carbon intensity of its crude oil. In the future, the company could use its environmental edge as a marketing strategy. Low carbon intensity could even translate into a price advantage in countries that levy carbon taxes, if carbon taxes were designed to differentiate among crude grades by carbon intensity. More typically, carbon taxes apply an average value to oil products irrespective of origin.

Carbon taxes on Saudi and Venezuelan crudes at \$70 per barrel

Crude oil source	Upstream GHG intensity (g CO ₂ eq/megajoule)	Upstream GHG tax per barrel		Total GHG tax ^a		Oil price @ \$70/barrel	
		@ \$25/tonne	@ \$50/tonne	@ \$25/tonne	@ \$50/tonne	+ \$25 tax	+ \$50 tax
Saudi average	3.5	\$0.54	\$1.07	\$11.64	\$23.28	\$81.64	\$93.28
Venezuelan Orinoco	31.9	\$4.88	\$9.76	\$15.98	\$31.97	\$85.98	\$101.97

^a This includes upstream CO₂ emissions as well as those from transport, refining, and final combustion. Venezuelan heavy crude oil typically sells at a discount to more valuable lighter grades, a distinction that is not captured in this analysis. Source: Baker Institute using CO₂ intensities from Masnadi et al. (2018b).



As the table above shows, Saudi medium crude priced at \$70/barrel with a \$25/ton carbon tax would cost \$81.64 per barrel. A barrel of Venezuelan Orinoco crude would be priced at \$85.98, a \$4.34 premium. At a \$50 carbon tax, the effect would be magnified: the Saudi barrel would be nearly \$9 cheaper.

Backing internal combustion engines over electric vehicles

The kingdom has also made strategic investments to improve engine efficiency so that gasoline engines remain cost-competitive with electric vehicles, which rely on power generation feedstocks that rarely include oil. In August 2018, Saudi Aramco announced it would cooperate with Japanese auto manufacturer Mazda to develop more efficient combustion engines and gasoline that would reduce GHG emissions from the transport sector. These developments would improve petroleum’s competitiveness versus alternative fuels and technologies.

‘Locking in’ market share through refining

Saudi Aramco has also created foreign joint ventures in refineries configured for Saudi crude oil, all but assuring the kingdom a share of the market in countries where it has invested. Aramco has bought stakes in refineries in China, South Korea, Japan, Malaysia, India, and the United States. Similarly, the Kuwait Petroleum Co. has purchased a stake in a refinery in Vietnam configured around Kuwaiti crude. These investments in vertical integration enable preferential access to crudes from states with ownership stakes.

Strategy no. 2: ‘join in’ climate action

As international resolve has coalesced around the desirability of GHG mitigation, Saudi Arabia has, at times,

shifted its public stance from obstruction to open support for climate action. Energy minister Khalid Al-Falih has supported the Paris accord as ‘balanced and fair’, saying in a 2017 ministry press release that the kingdom was ‘determined to see it implemented’. The Paris Agreement also provides useful political cover for unpopular—albeit environmentally beneficial—actions like Saudi Arabia’s reforms of energy subsidies in 2016 and 2018. These reforms have economically rational goals of reducing government spending on energy provision and decreasing the ‘cannibalism’ of exportable energy commodities, while allowing renewables to compete more readily with fossil generation. Subsidy retractions serve double duty as environmental policy, since they also reduce growth in the kingdom’s GHG emissions.

Internationally, Saudi Arabia promotes a different ‘join in’ strategy, featuring efforts that protect the interests of oil-exporting states in ways that do not harm demand for fossil fuels. Supported strategies include the following:

- **Carbon capture and storage—** This actually increases fossil fuel input for the same energy output, because capturing and compressing CO₂ requires combustion of additional fuel.
- **Flaring reductions—** Saudi Arabia seeks to persuade other countries to reduce upstream emissions so as to reduce pressure to curtail final consumption.
- **Focus on GHGs other than CO₂—** Saudi officials want more attention paid to GHGs such as methane and nitrous oxides, which, although a smaller portion of overall emissions, have much higher heat-trapping properties than CO₂.

The Saudi international climate negotiation brief also argues that fossil fuels should be retained in a future energy mix due to their synergies with renewables. The kingdom sees CO₂ emissions as a harmful side effect that can be mitigated with technological solutions. In 2014, Saudi Aramco joined the Oil and Gas Climate Initiative, a group of 11 major oil companies each pledging \$100 million for research into low-emissions fossil fuel technology.

In the coming years, the kingdom and Saudi Aramco appear likely to highlight these efforts, as well as the low carbon intensity of its crude, lack of flaring and fugitive methane, and investments in high-efficiency engines to claim credentials as an environmentally responsible supplier of necessary fossil fuels.

Strategy no. 3: ‘throw in’ and accept climate damage

Saudi Aramco and other fossil fuel producers, scholars, and sympathetic elites have been promoting a relaxed path toward decarbonization that amounts to a concession (‘throwing in the towel’) that 2°C emissions limits are too costly and disruptive. The ‘pragmatic’ climate strategy, as outlined by Gross and Matsuo (2017), argues that trade-offs are needed between mitigation costs and allowances for losses, even if the result means that average warming reaches 3°C and brings increased climate damage. Proponents argue that damage costs would be more than offset by reductions in spending on mitigation, and by reduced economic losses among producer governments.

However, the coalition’s estimates of mitigation costs are based on modelling carbon taxes required to bring about sufficient reductions in demand. A very brief comparison of *actual* climate damage costs and hypothetical lost revenue highlights potential weaknesses in the assumptions used.



In 2017, the United States alone experienced a record \$306 billion in damages from weather and climate disasters. That amount is almost five times the 2017 revenues of Saudi Aramco (roughly \$65 billion) and more than 70 per cent of OPEC’s 2016 oil export revenues. If anthropogenic climate factors were responsible for 20 per cent of the damage—due to intensified drought-induced wildfires and flooding from extreme rainfall—paying for that portion alone would require Saudi Aramco’s entire 2017 revenues. Of course, 20 per cent may be too large an estimate of the anthropogenic role, but the damages tallied are also incomplete and do not account for heat-related mortality, decreased crop yield, increased electricity demand, and other factors such as negative feedback loops from shrinking snow and ice cover, or methane releases from thawing permafrost.

In summary, the ‘throw in’ strategy revolves around speculation that improved technology will emerge in the future and reduce GHG emissions without terminating the fossil fuel industry. Given that such technologies have yet to be demonstrated or deployed, the strategy may be described as a nuanced update of Saudi Arabia’s prior obstructionist approach.

The Saudi advantage

Saudi Arabia has developed a sophisticated climate strategy that leverages its significant advantages as a low-cost oil producer with substantial market and investment power. The kingdom has staked out an early advantage in noncombustion uses for oil and gas, and has made investments that should place it in a strong future position as a relevant supplier. However, it is worth noting that the strategies outlined range from activities that would bring a decrease in

emissions—at least at the margins—to those that would increase or prolong them. To the extent that these tactics assist in the marketing of fuels that continue to be combusted in unabated fashion, they prolong damage to the Earth’s climate, geography, inhabitants, and their property, despite providing short-run economic benefits, particularly in developing countries.

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OIL AND ECONOMIC DIVERSIFICATION IN NORWAY

Petter Nore

Norway has experienced substantial success in managing its oil and gas wealth. It has converted a large part of its reserves to financial assets, with a sovereign wealth fund equivalent to 2.5 times its GDP. This is a unique accomplishment. The closest historical parallel is Britain, which before World War I had external assets amounting to twice its GDP (Picketty, 2014) – but that wealth was mainly owned by private individuals, while Norway’s fund is a way to take care of the collective savings of the Norwegian people .

The Norwegian Oil Fund (formally known as the Government Pension Fund Global (GPF)), which has strict limits on annual withdrawals, has helped Norway avoid turning into a rentier state. The country has maintained a diversified economic structure even though its important oil- and gas-related supply industry has made it industrially more dependent on the hydrocarbon sector.

The Oil Fund as an instrument of diversification

The Oil Fund serves as a savings fund to prepare Norway for future pension commitments. But it also prepares the country for a new low-carbon energy system. Energy markets are likely to change fundamentally during the

coming decades. The world is moving towards low-carbon energy; the great uncertainty is how quickly this energy transition will occur. This will put existing oil and gas producers, including Norway, under much more pressure as their main source of income is likely to diminish over time. It is in Norway’s interest to transfer as much wealth as possible from oil in the ground to other forms of capital before these assets risk becoming worthless. The Oil Fund is instrumental in this transfer (even though this was not its original purpose).

The Oil Fund also operates as a stabilization fund to even out fluctuations in oil revenues by separating the earning and spending of those revenues. A “spending cap” limits the amount of money which yearly can be transferred from the Fund to the budget to 3 percent of the value of the fund. This figure is an average over the business cycle. It is set about one per cent below the historic real rate of return of the Oil Fund. This has led to greater macroeconomic stability, greater ability to live with market risk, and less vulnerability to the potential negative effects of oil income on economic diversification. The Oil Fund stands out as the most important diversification policy of the Norwegian oil age.

The oil revenue mechanism

The Oil Fund was created in 1990 and became operational in 1996, more than 20 years after production started on the Norwegian continental shelf. At the start, it was considered a fiscal instrument to smooth volatile income streams. It was much later that it became an intergenerational savings fund.

Norway channels all its state revenues from oil and gas into the Oil Fund. This is different from almost all other oil- and gas-producing states. There are, however, some hybrid solutions.



Russia, for example, puts aside all ‘excess’ income (unspecified) into its National Wealth Fund, while feeding the rest into the budget (IEA, 2018).

Direct Norwegian government participation in the industry through the State’s Direct Financial Investment (a portfolio of the Norwegian government’s directly owned exploration and production licensees) along with an extraordinary tax rate for oil companies, currently at 78 per cent, ensure that most of the resource rents flow into government coffers.

All the government’s income from the sector—consisting of taxes, cash flow from the State’s Direct Financial Investment, and dividends from the state’s equity share of Equinor (formerly Statoil)—is injected into the Oil Fund. All the Fund’s capital is invested abroad. The 3 per cent spending cap guides the annual transfers from the fund to the fiscal budget.

Today, equities make up 66 per cent of the Fund’s assets; 31 per cent is in bonds, and 3 per cent in unlisted property. The greater part of the portfolio is held in OECD countries. Norway, a nation of 5.3 million inhabitants, today owns 1.4 per cent of all global equity (2.4 per cent of all

European equity). The average real rate of return net of administrative costs from 1996 to 2017 was 4 per cent, 0.25 per cent higher than a chosen reference index. The fund has helped to set a global ‘gold standard’ for transparency and governance of sovereign wealth funds (SWFI, 2018)

Sustainability principles

The Fund also adheres to broad and accepted sustainability principles. Its emphasis is on intergenerational principles, environmental issues, and ethical behaviour. This is in line with the first Brundtland Report, which defined sustainability as ‘development that meets the needs of the present without compromising the ability of future generations’ (WCED, 1987, 43). Another definition of economic sustainability states that a country’s national wealth per capita should remain intact over time (NOU, 2005). This means that as a country extracts a non-renewable commodity like oil, the consumed capital should be substituted by other forms of capital. This is exactly what the Oil Fund does.

The Fund’s ethical standards prohibit investments that break fundamental ethical norms, manufacture certain types of weapons, base their operations on coal or produce tobacco.

The Fund expects the companies in the portfolio to address a number of global challenges that largely coincide with UN Sustainable Development Goals ranging from climate change and water management to anti-corruption and tax transparency.

In March 2019 the Norwegian government proposed to divest 134 upstream oil and gas companies from the Oil Fund. This represents less than one percent of the value of the portfolio because the majors integrated companies were not among the chosen companies. The government said the proposal was meant to decrease the Fund’s aggregate oil price risk and was not related to climate change. Others have seen the divestment as a important symbolic “first move” that recognizes the financial risk associated with climate change and that may set a precedent for other global funds.

(For a more detailed description of the Oil Fund, see www.nbim.no)

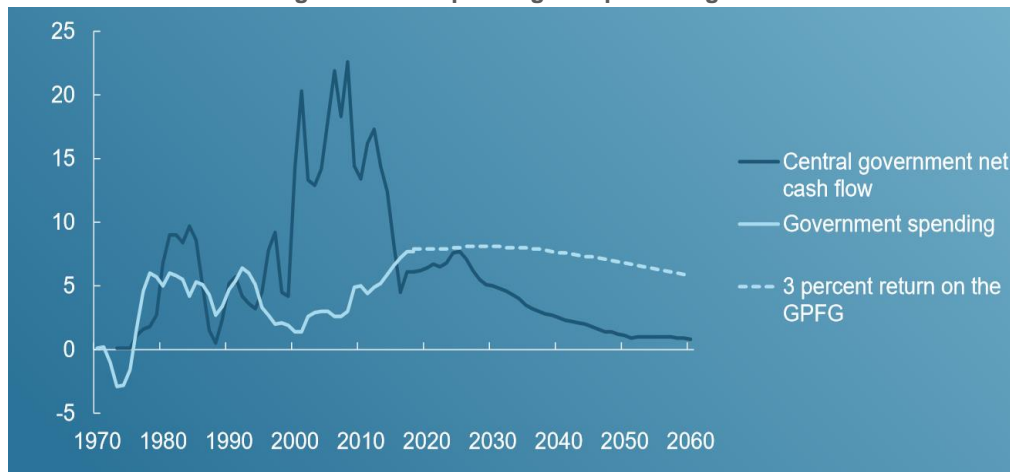
A 67 per cent savings rate

The government has, since the creation of the Oil Fund, saved 67 percent of its net cash flow from the petroleum sector. The figure below shows the relationship between government oil revenues (net cash flow) and how much of these have been spent

(Statistics Norway, 2018). The savings rate increases to 82 per cent if the cumulative return from investments in the fund is added to government oil revenue.

The result of the savings is that the Oil Fund has become the world’s largest sovereign wealth fund. Its value by the end of 2018 (\$1 trillion) corresponds to approximately to 2.5 times the Norwegian GDP or around \$190,000 per Norwegian citizen.

Petroleum revenues and government spending as a percentage of GDP



Source: Olsen (2018)



There are several reasons for this high savings rate. From the beginning of Norway’s oil era in the early 1970s, there has been a national consensus that Norway should not become a ‘rentier economy’ (Parliamentary Report, 1973). Norwegians have been particularly concerned about not succumbing to the ‘Dutch disease’ — which refers to the negative effects of oil and gas income that have often crowded out traditional industry through the wage mechanism (Corden and Neary, 1982).

To prevent such an outcome, policymakers initially set a physical production limit (90 million tons of oil equivalent per year). Later, the Oil Fund with its 3 per cent spending cap became the primary prevention mechanism. A fund like this is easy to establish but extremely difficult to manage over time. Its success is largely due to its high quality of governance, effective institutions, and political legitimacy in Norwegian society.

Timing is another important reason for the high savings ratio. A great part of the Norwegian oil rent was collected during the ‘commodity super cycle’ in the first decade of the 21st century, when China’s demand for raw materials drove commodity prices to new highs. The sudden surge in income was so overwhelming that it would have been virtually impossible to consume it all. Economic theory indicates that there is a lag to learn to consume as income increases.

Transformation of capital from oil in the ground to financial assets

Even more impressive than building a world-class institution and the world’s largest sovereign wealth fund is the way Norway has managed to transform one form of wealth (oil in the ground) to another (financial wealth). This transformation is the ultimate example of diversification by a resource-rich country.

In 2006, financial wealth in the Oil Fund made up a little less than 50 per cent of the value of remaining oil and gas reserves. By 2017, financial wealth had reached 200 per cent of the same metric. There are significant uncertainties about the value of the remaining oil and gas reserves, especially given the rapid changes expected in global energy markets. But the rate of transformation has clearly increased during this period. There is no doubt about the direction of the change.

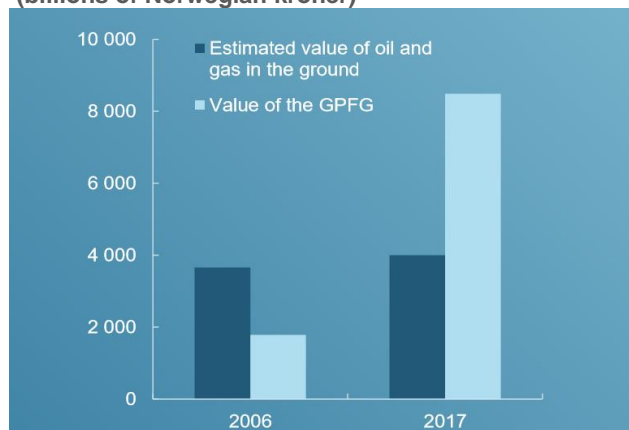
Both dependent on and independent of the oil price

Following the dramatic fall in the oil price in 2014, Norway avoided a recession by pursuing a counter-cyclical economic policy financed by the existing assets in the Oil Fund. The Norwegian government did not need to balance its budget by cutting expenditure and investments because oil income dropped. The reason being that government spending in Norway is largely independent of the current oil price.

The build-up of the Oil Fund and the 3 per cent spending rule ensures that oil and gas related spending only depends on past savings (the value of the fund), and not on current oil and gas prices. The short run fiscal break-even oil price (the price that is necessary for balancing the Norwegian budget) is therefore technically zero.

Again, Norway’s position differs from the majority of petroleum producing states. The International Monetary Fund estimated that in 2017, 11 Middle Eastern and Central Asian oil

Transformation from natural to financial wealth (billions of Norwegian kroner)



Source: Matsen (2018)

producers had an average fiscal break-even price of around \$70/barrel (IMF, 2018). As prices fell in 2014 a number of these countries dramatically cut their budgets.

But should the oil price remain at zero in the long run, Norway would of course have less income available to spend for future generations. In such a case the Fund would only grow due to financial return from the existing assets. This is, however, not a trivial observation. Cumulative financial returns in the Oil Fund during the period 2014-17 were higher than net income from oil and gas.

The Norwegian government and society should therefore be just as concerned about the state of the world economy, which defines the value of the Oil Fund, as about current oil and gas prices.

Industrial oil dependence

Norway has built a large industrial sector that supply goods and services to the oil industry. This sector is internationally competitive, technologically sophisticated and highly profitable. Thirty-five per cent of its production is exported and Norway is world leader in areas like underwater production systems.

When oil prices crashed in 2014 the main negative effects were felt by the



supply industry. Yearly investments in this sector (19 per cent of all Norwegian investments) fell by 34 per cent while 15,000 jobs were shed. The damage was especially felt regionally on the Western Coast.

This was a very painful process and showed that Norway, despite its macro-economic resilience, has paid some heavy costs for being industrially dependent on the oil and gas sector.

There are three take-aways from this experience:

- Building a supply industry sector has not been at the expense of maintaining a diversified economic structure. Norway is today the world's largest fish exporter while maintaining its role as a major producer and exporter of hydropower.
- Norwegian industry showed itself to be more flexible and robust than expected in moving to new activities after 2014. Equinor used its offshore skills to start an intensive investment program of floating offshore wind turbines. The fish farming industry is developing scale solutions partly inspired by technology developed by the petroleum sector.
- The government's flexible exchange rate policy has significantly helped the national diversification process

How sustainable is the Oil Fund?

What is taken as a given by one generation can fundamentally change by the next. The United Kingdom lost its net foreign asset position during 1914–1950 as a result of three factors: the collapse of the foreign portfolio; two world wars, and lower domestic savings that led to a draw-down of foreign assets (Picketty, 2014, 155).

A combination of exogenous and endogenous factors can change Norway's position.

- What will happen if Norway simultaneously experiences an erosion of the value of Fund capital, a faster than expected increase in state expenses, and falling return on investments?
- This is not a wholly speculative scenario. Government expenditure has grown dramatically. In 2005, transfers from the Oil Fund constituted 5 per cent of government income, while in 2018 this figure was 18 per cent. While expenditure continued to stay inside the spending cap, the size of the fund has increased so much that the size of the transfer can threaten the very success of diversification.
- A dramatic international economic collapse with equity prices in free fall would shrink the value of the Fund. The Bank of Norway has tested scenarios under which value could decline by up to 40 per cent. But it is highly unlikely that there will be a prolonged recession, and the value of the fund is very likely to eventually recover. It may be necessary to draw down the Fund's capital in case of natural disasters or military conflict, like the United Kingdom did in the two world wars.
- Populism is on the rise everywhere. Political forces may start to ask why they do not get more out of the Fund to support present consumption. There have already been serious discussions about whether Norway saves too much and consumption could be higher (Gagnon, 2018). Is there an optimum size for the Oil Fund?
- No studies have been undertaken to compare the Fund's performance with that of

peers like the Singapore Investment Corporation. Will there be a reaction the Fund is perceived to have underperformed?

Norway can to some extent plan to meet these exogenous and endogenous dangers. It can influence the growth in state expenditure and how much is withdrawn annually from the Oil Fund. But it will have very little influence on factors like global recessions or external conflicts.

Can GCC countries learn from Norway's experience?

Norway is not a model that other countries can blindly copy. Political, social, and legal contexts differ dramatically between countries. Most importantly, Norway has not been under intense pressure, like many other oil-producing states have, to satisfy demands for basic services like health, education, and basic infrastructure.

That said, some of Norway's experiences are worth considering. The Norwegian sovereign wealth fund and its 3 per cent spending cap have contributed to macroeconomic stability and helped the country avoid the 'Dutch disease'. Flexible exchange rate policies have helped this diversification and strong and competent institutions and good governance have been essential to its success. Norway has also managed to build a world-class oil and gas supply industry while maintaining a diversified economy.

But in the end it is about politics. The Oil Fund has enjoyed a high degree of legitimacy in the population. If that continues, Norway will be in a strong position to confront both external and internal challenges. But if, for whatever reasons, the political legitimacy of the Fund should weaken, Norway's situation could quickly change.



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