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The Low-Cost OPEC Cycle: The Big Elephant in the Room

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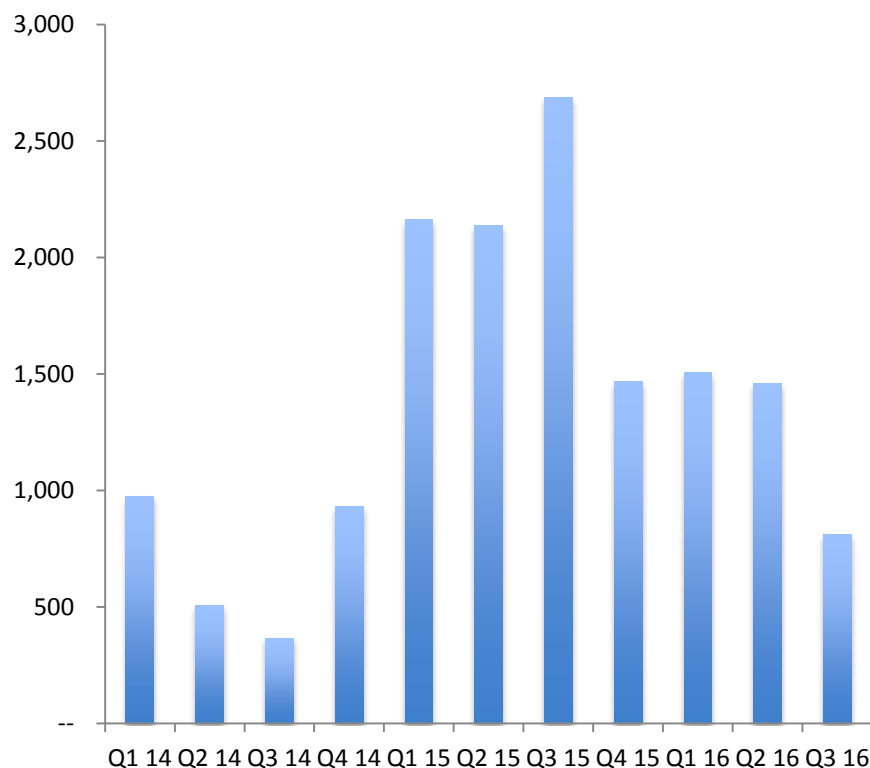
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In 2015, Oil Demand Growth (particularly gasoline) Carried Bulk of Adjustment

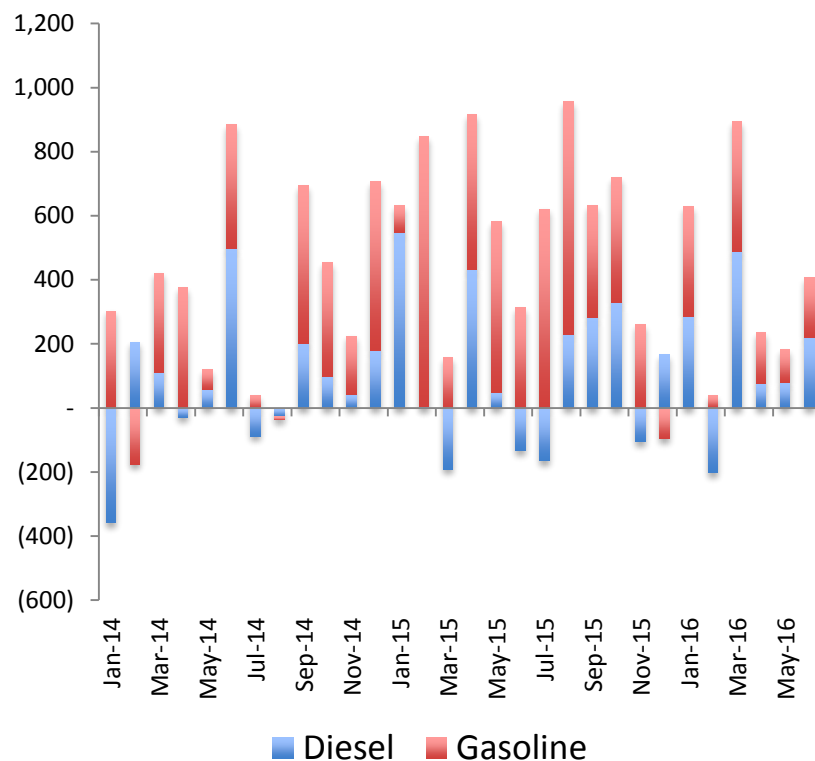
Global Oil Demand, y/y change, thousand b/d



Oil demand growth (driven in big part by low oil prices) exceeded expectations in 2015 though it has been slowing down in recent months

Source: IEA, Energy Aspects

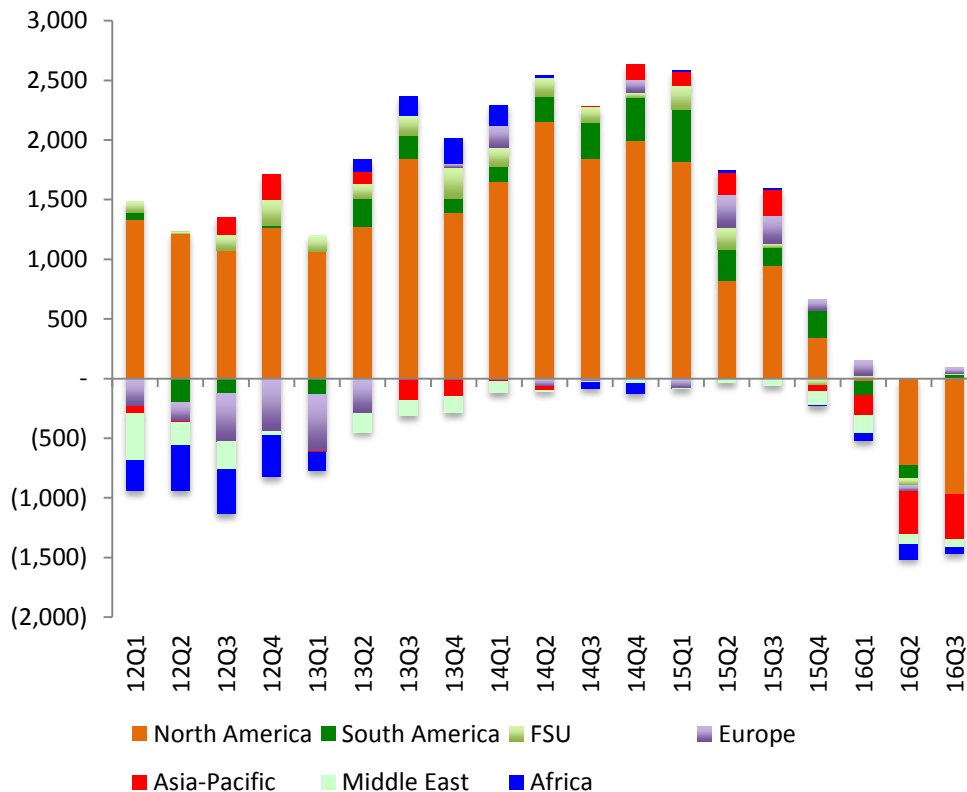
Non-OECD Asian Gasoline and Diesel Demand, y/y change, thousand b/d



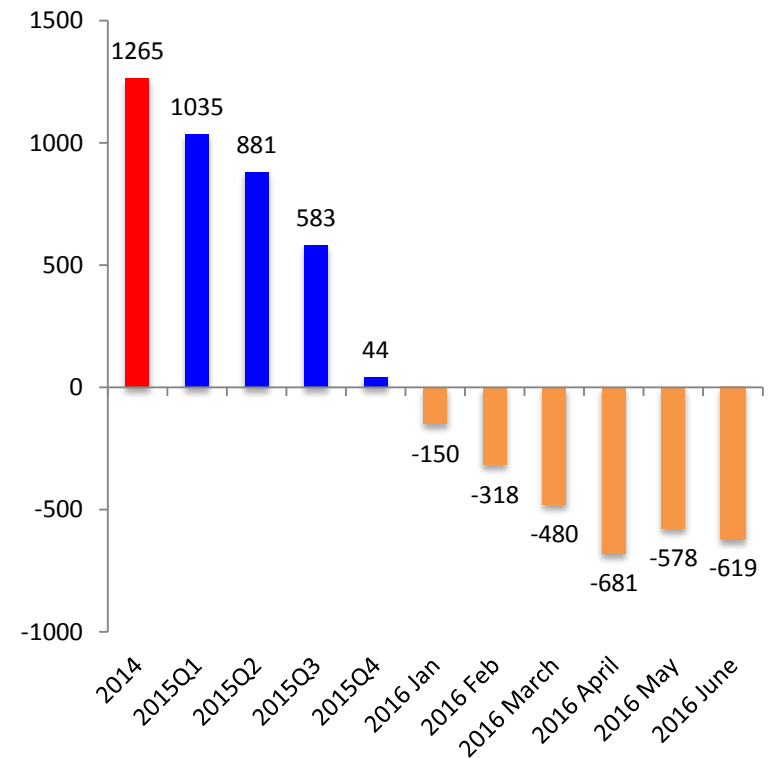
Non-OECD Asia remains main source of growth; But growth is no longer only about China or about diesel; as Asian economies rebalance, gasoline (also naphtha) have become the main driver of oil demand growth

In 2016, Pass on the Baton to Non-OPEC Supply (Particularly US Shale)

Non-OPEC Supply, y/y change, thousand b/d



US Supply, y/y change, thousand b/d



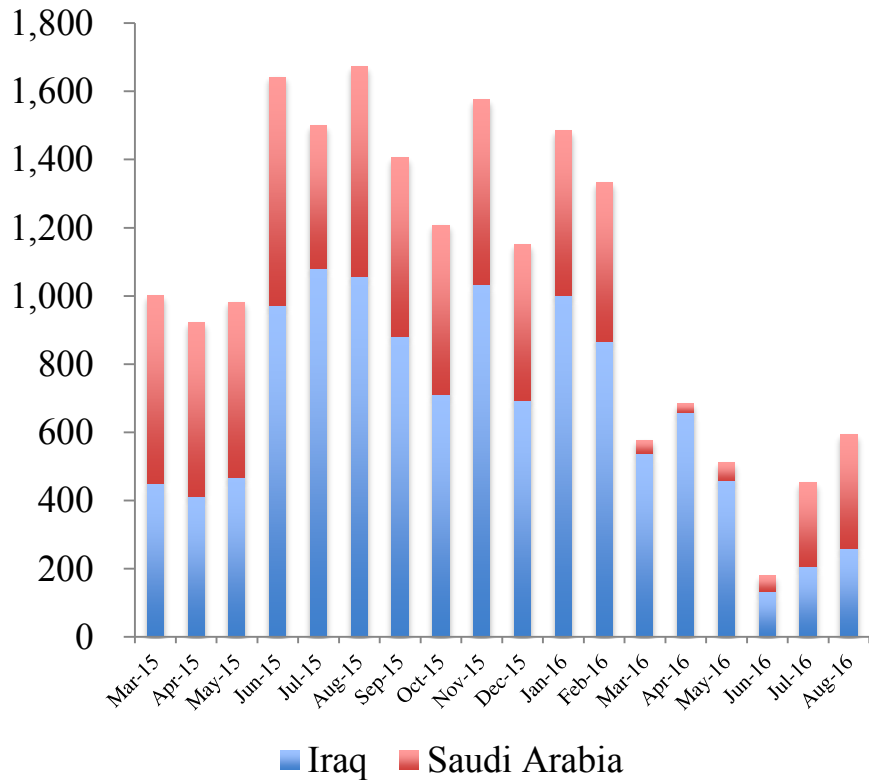
After robust growth in the environment of high oil prices, the y/y change in non-OPEC supply has turned negative in almost every part of the world

Source: EIA, Energy Aspects

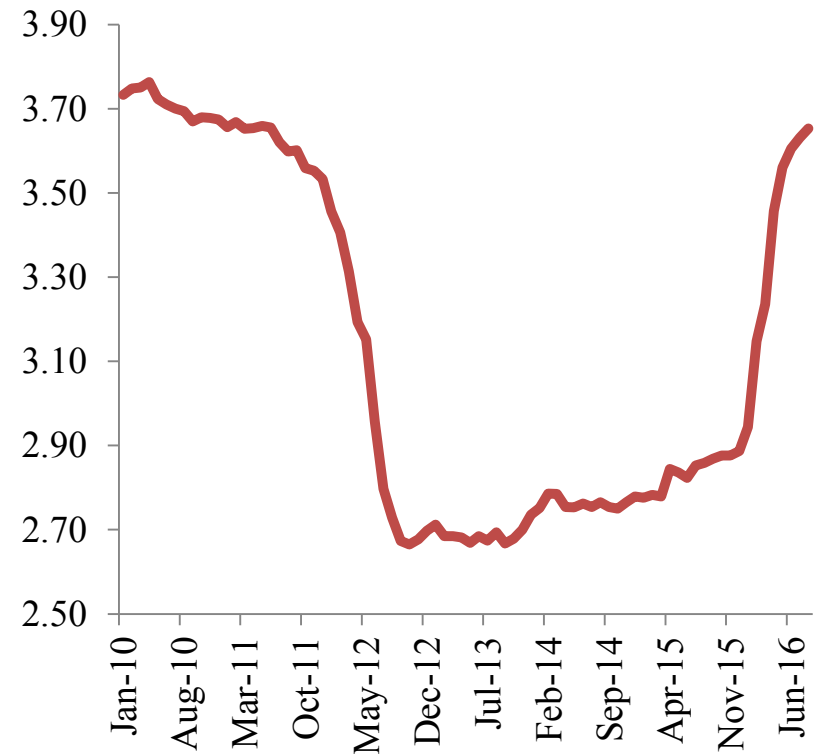
Despite efficiency gains, US shale has been leading the way and has been the fastest to respond to the decline in the oil price with growth turning negative

Middle East OPEC Supply Growth: the Elephant in the Room

Saudi and Iraq output, y/y change, mb/d



Iranian oil Output, mb/d

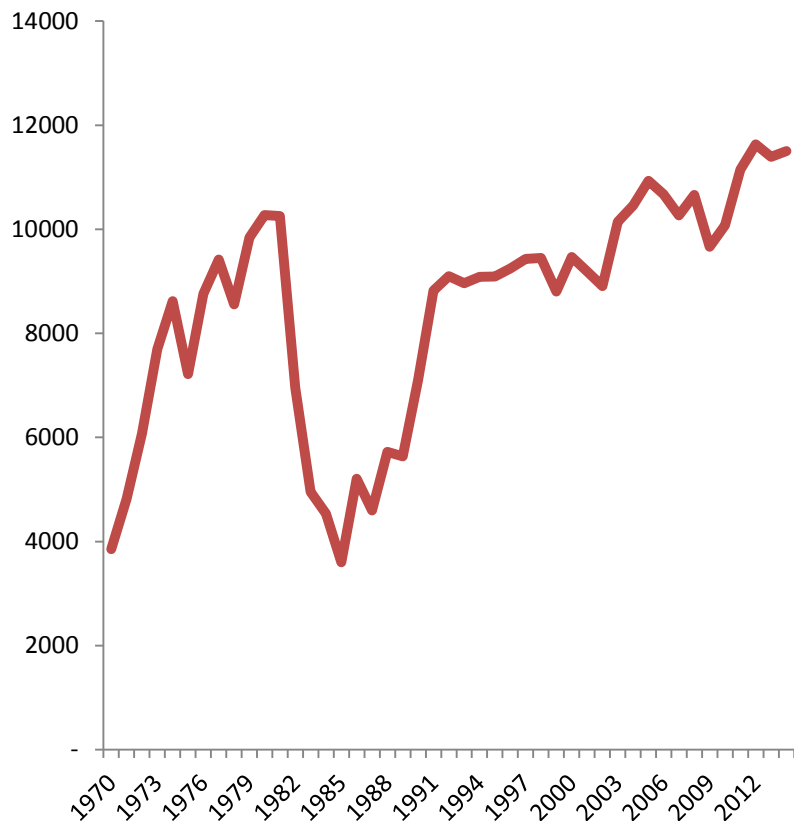


OPEC has been major source of supply growth with Iraq and Saudi Arabia alone adding more than 1.1 mb/d in 2015 and more than 700,000 b/d in 2016 (Jan-August)

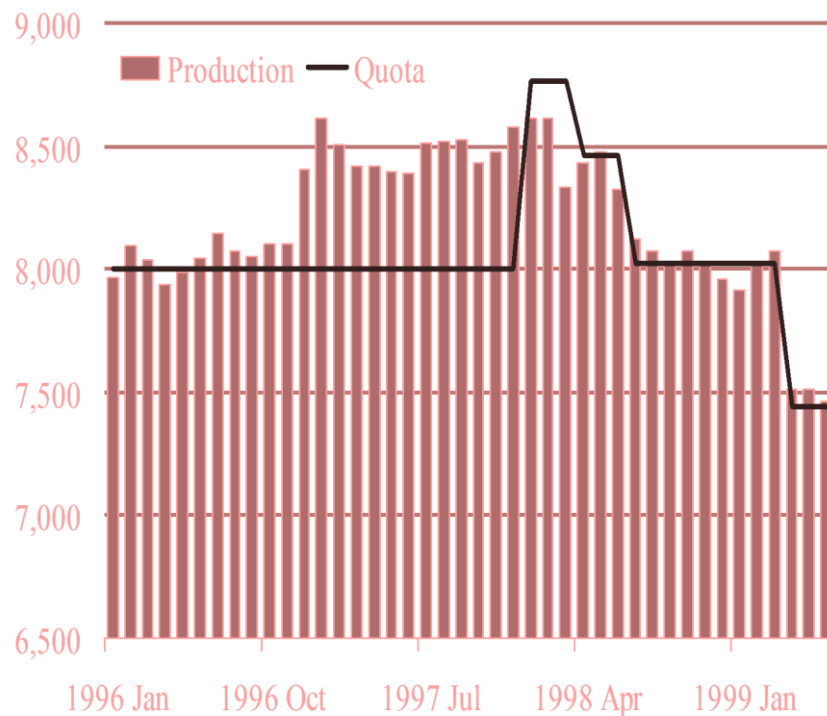
In 2016, Iraq and Saudi Arabia were joined by Iran which ramped up its output to pre-sanction levels much faster than originally expected

Saudi Oil Policy Based on Fundamental Principle: No Unilateral Action to Balance the Market on Downside

Saudi Arabia Oil Production, mb/d



Saudi Arabia production vs Quota (kb/d)

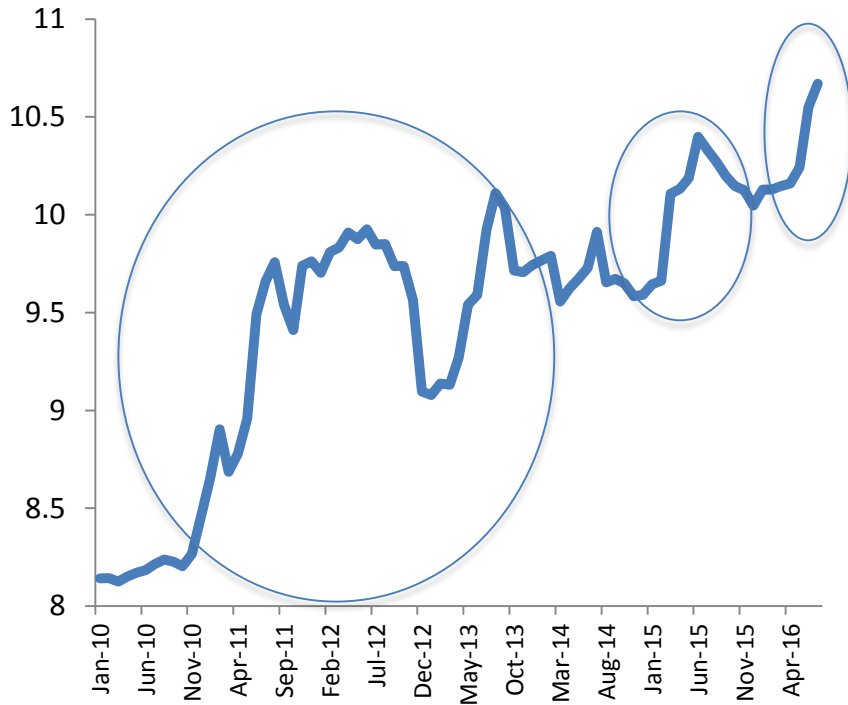


Saudi Arabia not willing to cut output unilaterally; shaped by the mid 1980s events when its attempt to protect the price resulted in loss of large volumes of production and market share (and lower revenues)

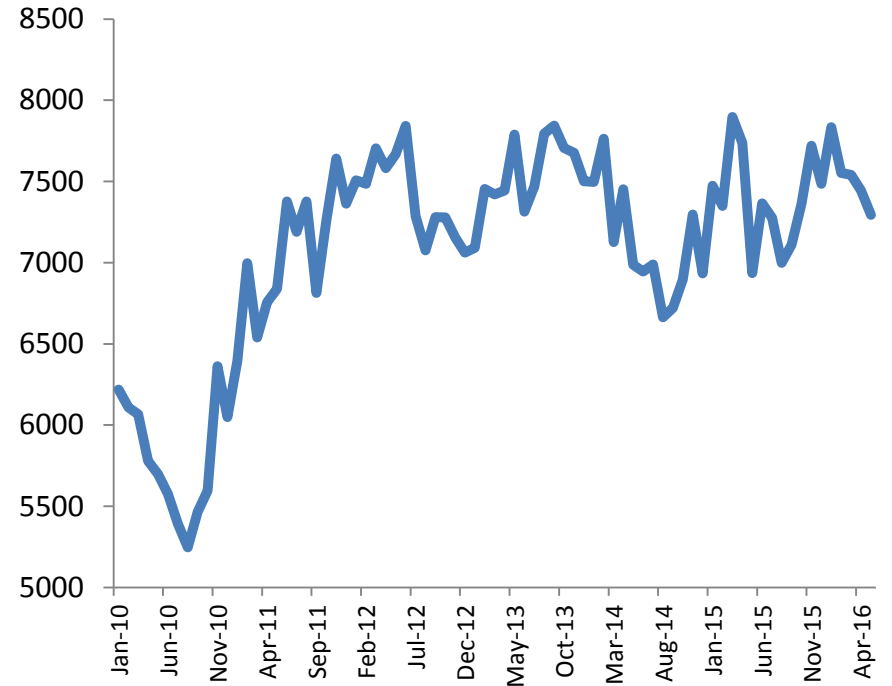
In response to Venezuela's increase in output in the mid 1990s, Saudi Arabia increased its output beyond its quota contributing to the oil price collapse

Saudi Output Policy Has Passed Through Various Phases Recently: Is there a New Phase in the Making?

Saudi Arabia Oil Production, mb/d



Saudi Arabia Crude Oil Exports, thousand b/d

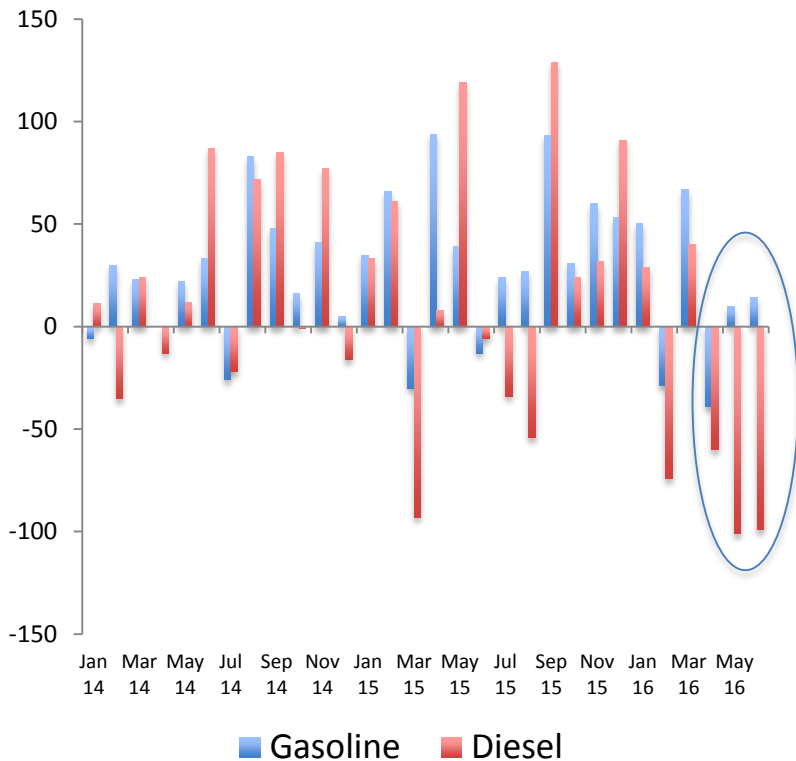


Phase 1: Increase production to offset outages; Phase 2: Pursue a market share strategy in the absence collective agreement on output and in face of a structural shock and heightened uncertainty; Phase 3 in making: Increase output and pursue cooperation; What are the potential drivers?

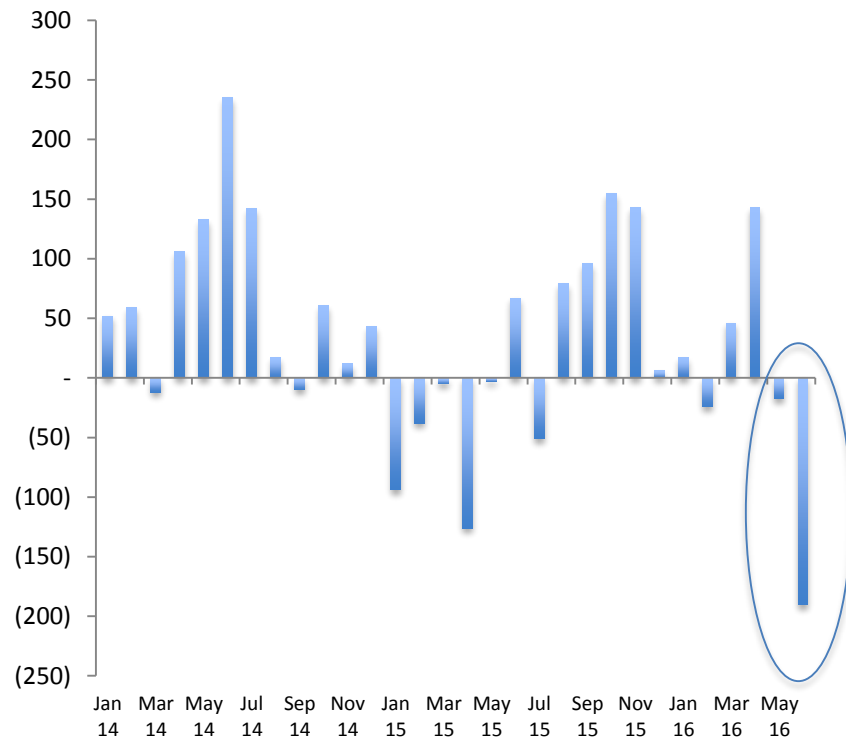
Saudi exports remain elevated and it seems there is implicit policy of maintaining crude exports above a certain level

Recent Increase in Output Not Only Due To Swing in Summer Oil Demand

Gasoline and Diesel Demand, thousand b/d



Crude Burn, y/y change, thousand b/d

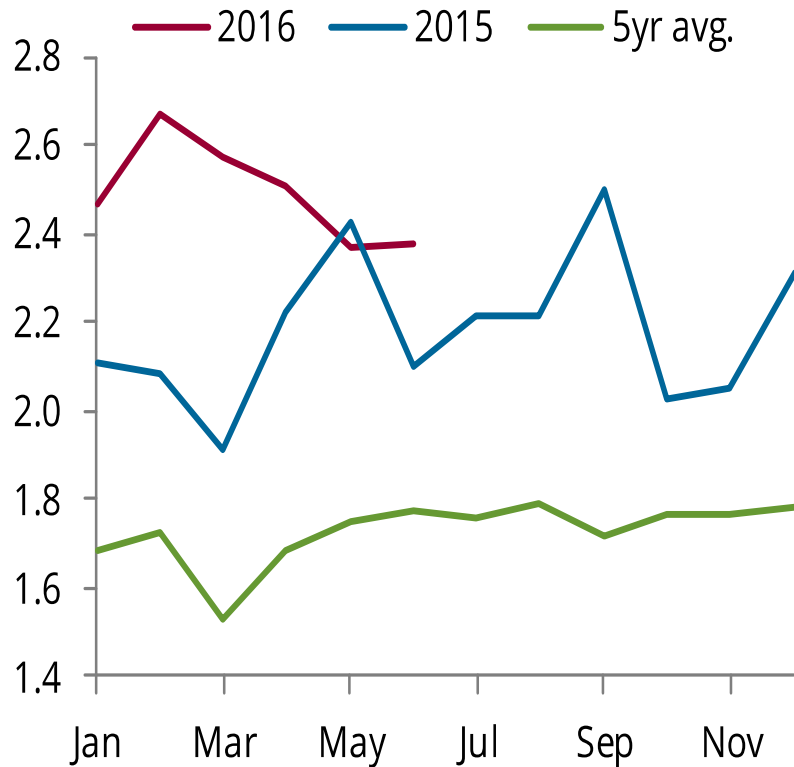


Products demand has weakened in recent months particularly diesel reflecting an overall slower economic growth

Crude burn compared to last year has also fallen reflecting in part slower growth of electricity demand and use of more gas in the power sector

Saudi Arabia Also Competing in Products Markets

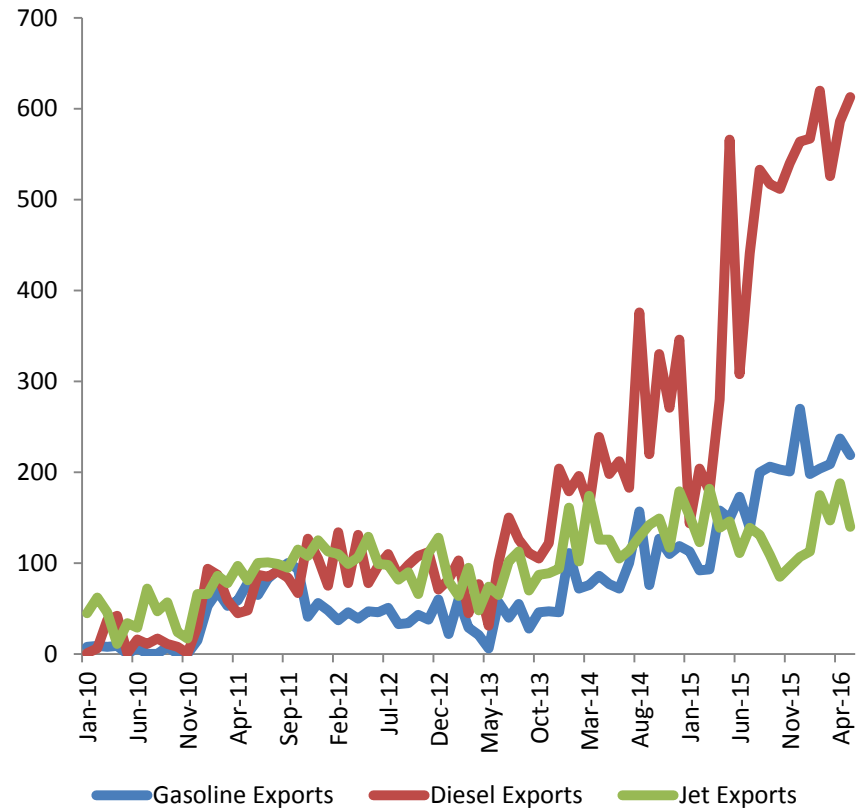
Saudi Arabia Refining Runs, mb/d



Saudi Arabia refining runs at record levels as the new refineries ramp-up output

Source: JODI

Saudi Arabia Products Exports, mb/d



Exports of products (particularly diesel) have been on the rise and Saudi Arabia is competing in products market

Phase 2: New Set of Structural Uncertainties

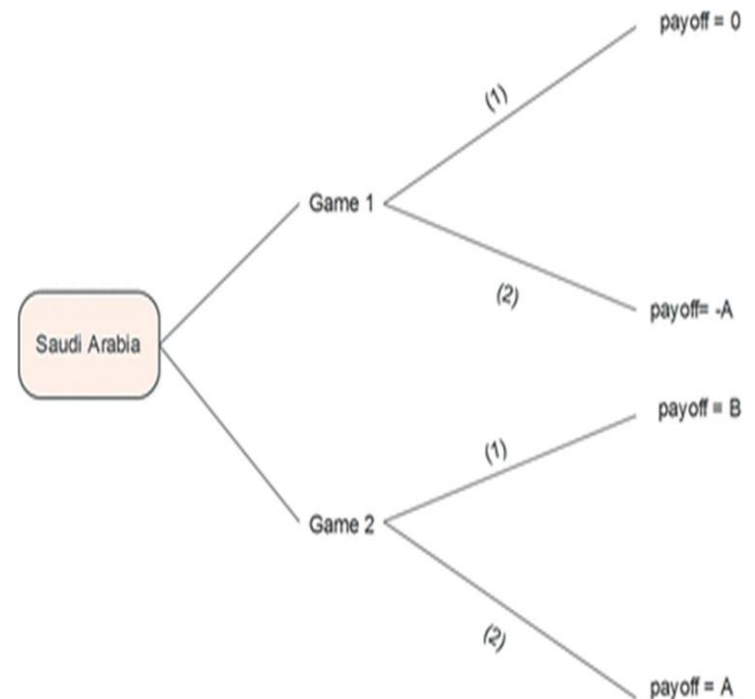
Game Under Certainty

Elastic US supply (Game 1)			Inelastic US supply (Game 2)		
	Other-OPEC members cut output	Other-OPEC members do not change output		Other-OPEC members cut output	Other-OPEC members do not change output
Saudi Arabia cuts output	-C, -C	-A, 0	Saudi Arabia cuts output	A, A	C, B
Saudi Arabia does not change output	0, -A	0, 0	Saudi Arabia does not change output	B, C	0, 0

Under complete information about shale response in a rising price environment, there is a single and efficient solution to the game

Source: Fattouh, Sen, and Poudineh (2015), Oxford Review of Economic Policy

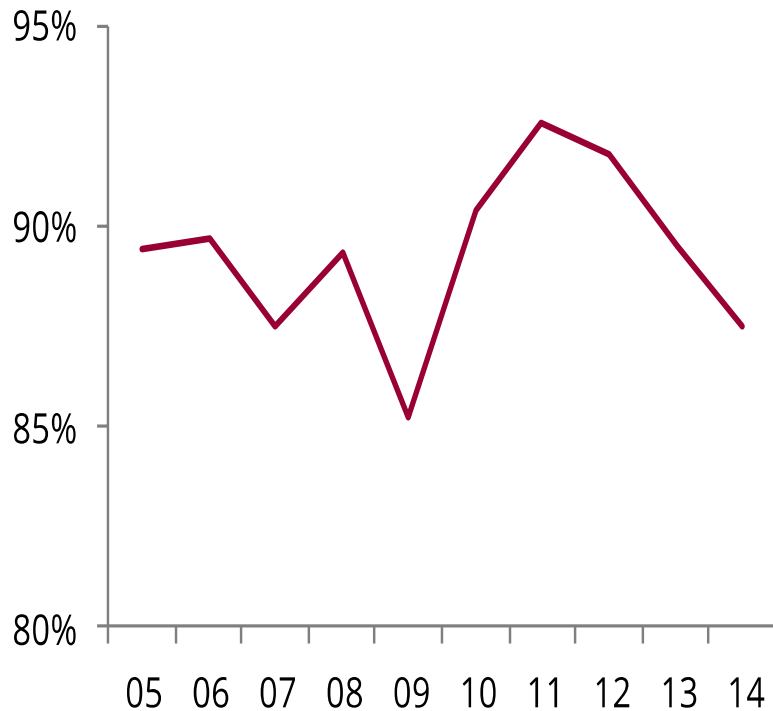
Game Under Uncertainty



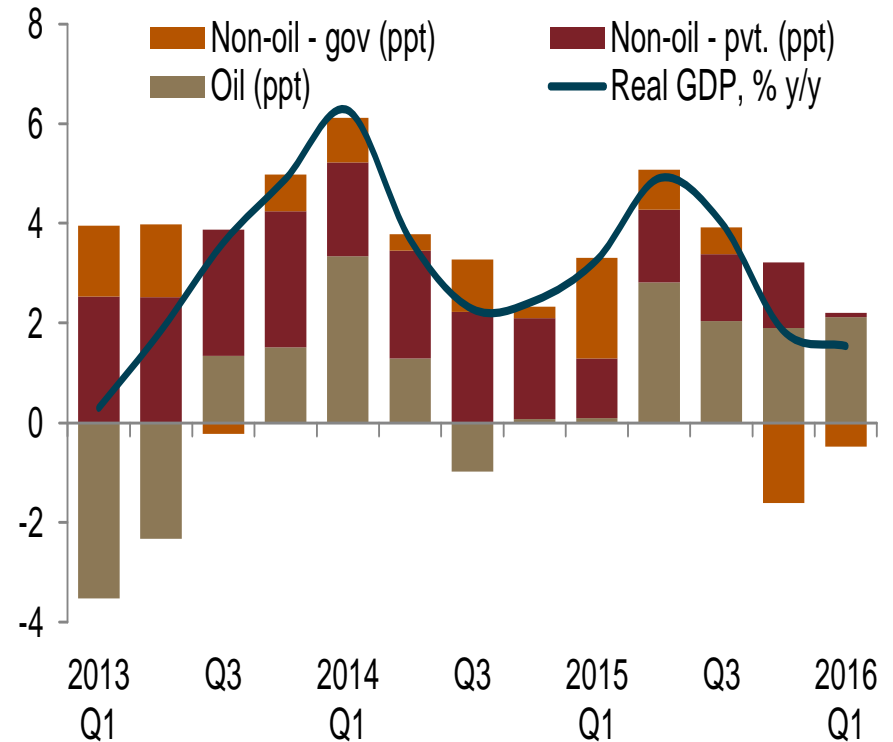
Under uncertainty about US shale response, Saudi Arabia is better-off to assume that shale supply curve is elastic and not to cut production

Limited Diversification and Heavy Reliance on Government Revenues

Oil share of government revenues, %



Quarterly Real GDP Growth



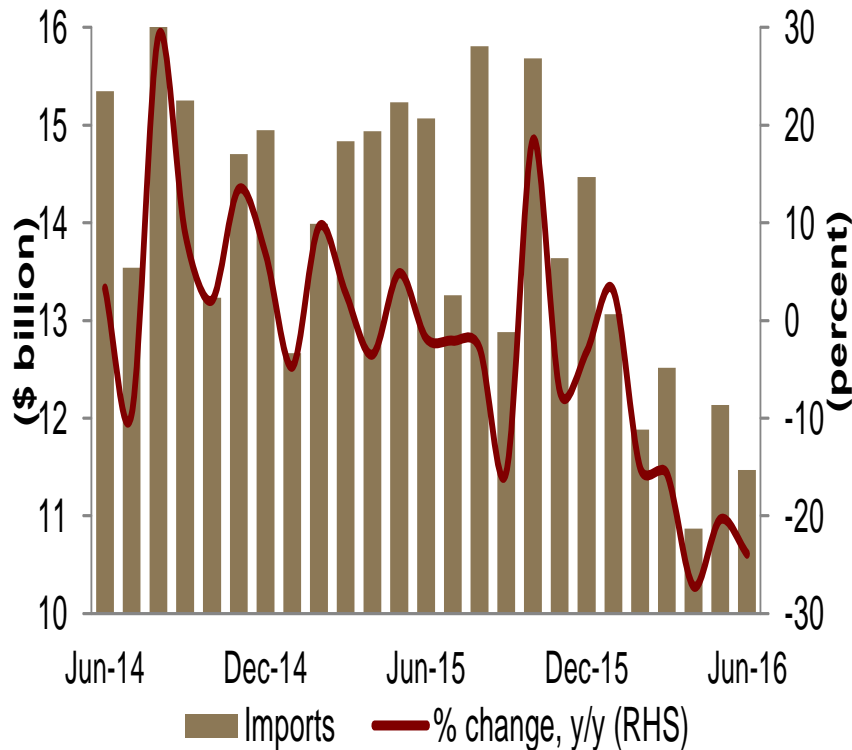
Paradox: Vision 2030 is about moving away from oil but oil revenues constitutes main source of government revenues and are enabling factor to transitioning to 'vibrant' economy

Source: Jadwa

Fall in oil revenues has had a big on economy especially on non-oil private sector which still relies heavily on government spending

Despite fiscal buffers, Saudi Economy Badly Hit By Low Oil Price

Saudi Imports, \$ billion and y/y change (%)



Saudi Stock Market Index



Saudi imports have declined sharply in the last few months

Saudi stock market has lost more than half of its value since the the fall in the oil price

Phase 3: The Power of Signaling

August 11, 2016 9:30 am

Saudi energy minister hints at effort to rebalance oil market

OIL REPORT | Fri Aug 26, 2016 1:41am IST

INTERVIEW-Saudi energy minister tempers expectations for production freeze

COMMODITIES | Wed Aug 31, 2016 11:17am EDT

Saudi Arabia doesn't target specific level of oil output: Falih

COMMODITIES | Thu Sep 1, 2016 3:32am EDT

Saudi minister says OPEC moving to common position on oil output changes

COMMODITIES | Thu Sep 29, 2016 | 4:29pm EDT

OPEC agrees modest oil output curbs in first deal since 2008

Speed the market rebalancing by seeking cooperation with other producers but OPEC output at historical records; Help improve market sentiment and squeeze shorts out of the market; Serious barriers remain for a deal in November (Iran-Saudi relations being only one among many barriers)

OPEC Adjustment Mechanism: The Investment-Output Channel

Iraq Rig Count



Iraqi rig count has fallen sharply as government faces serious fiscal pressures

Amended Plateau Rates, mb/d

Field	Plateau rate, million b/d (contracted)	Plateau rate, million b/d (Amended)	Reduction
Rumaila	2.85	2.10	0.75
Zubair	1.20	0.85	0.35
West Qurna-1	2.83	1.60	1.23
West Qurna-2	1.80	1.20	0.60
Majnoon	1.80	1.00	0.80
Halfaya	0.54	0.40	0.14
	11.01	7.15	3.86

Iraqi government forced to revise downwards its long-term production target, negotiating with oil companies for new plateaus of production

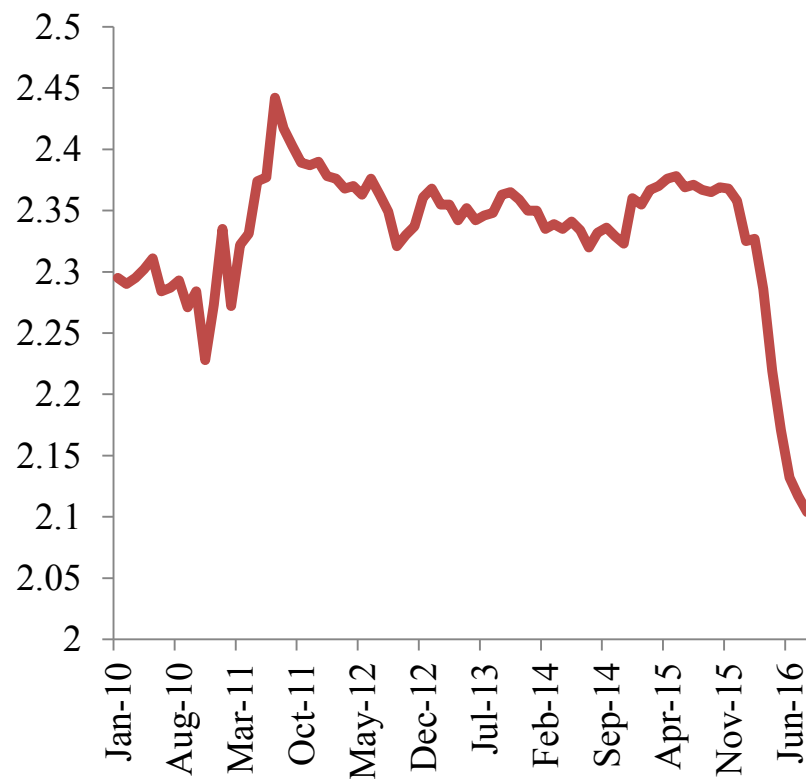
OPEC Adjustment Mechanism: The Fiscal Crisis-Output Disruption Channel

Nigerian oil output, mb/d



Attacks on oil infrastructure in the Niger Delta intensifies as government's ability to pay-off militants weakens

Venezuela oil output, mb/d



Poor planning, lack of investment, fall in number of rigs, equipment theft, and payment delays to service companies impacting Venezuela's output

The Low-Cost OPEC Cycle

- OPEC adjustment mechanisms
 - Collective agreement on cuts (Long-time to achieve consensus especially when many producers have aspirations to increase production; highly uncertain)
 - Impact on investment and on output (Longer lags than high non-OPEC cost producers; in stable OPEC countries, drive to invest continues even in a low price environment; the drive to maximize output in an attempt to maximize short-term revenues)
 - Fiscal crisis and output disruptions (highly unpredictable)
- OPEC current behavior represents a fundamental difference from some of the past cycles (absence of a key feedback mechanism to balance the market)
- Saudi oil policy shaped by multiple considerations (Internal: limited diversification; External: Nature of the shock; OPEC dynamics: Ability to forge a deal with other producers and implement it)
- As these factors change and/or as new information becomes available, Saudi oil policy will also change
- Potential shifts in Saudi oil policy and/or signals about these shifts will continue to shape oil market outcomes