After fossil fuels:a case study of MENA oil producers

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Questionable future of the oil market

- Peak oil and scarcity rents → need to manage oil reserves to keep stable production and stable income → heavy dependence on one commodity (oil) and its volatile price.

VS

- Peak oil demand and oil abundance on the market → some share of oil may never be extracted → higher competition on the oil markets, tightened incomes, uncertain future.

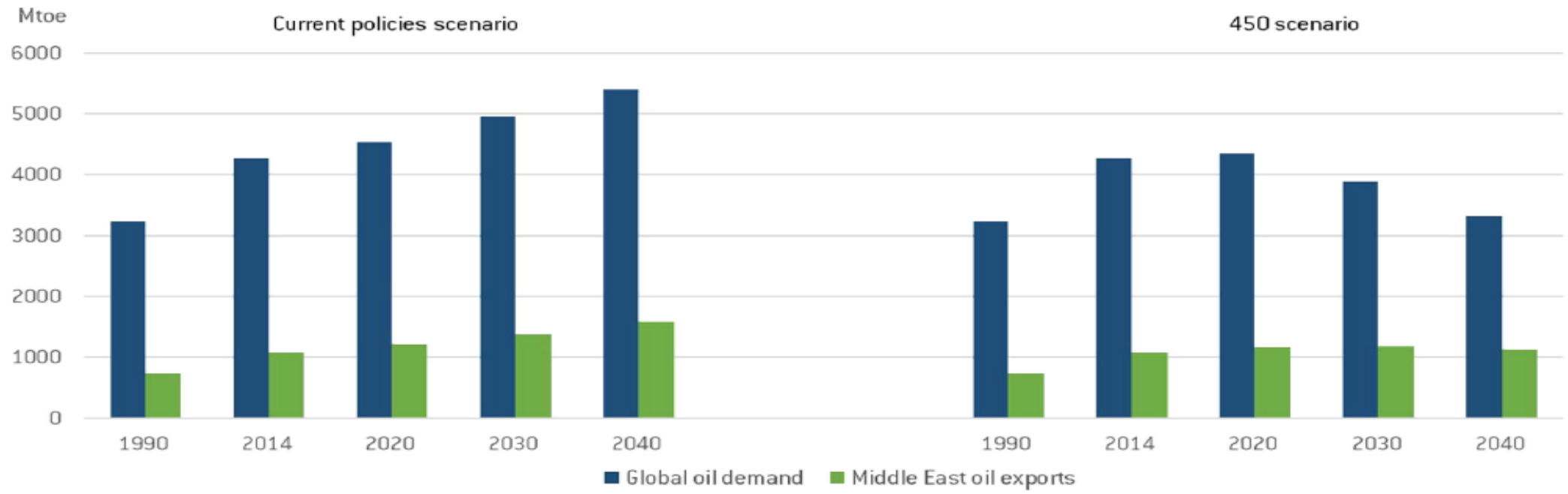
Expected transition driven by decarbonization

- Climate change mitigation (EVs, carbon pricing etc); local pollution; technology innovation.
- Problem mainly for coal and oil (natural gas ´a bridge fuel´).
- Greenhouse gas emissions in the present estimates of global fossil fuel reserves about 3x greater than the global budget → 1/3 of global oil, ½ of gas and over 4/5 of coal to remain unused from 2010 to 2050 to stay within 2°C target.
- For the Middle East it means to exploit about 60% of their reserves of oil, 40% of gas.

- Speed of the energy transition will determine the role of oil.
- Oil still essential source of energy, but under growing pressure.

IEA scenarios

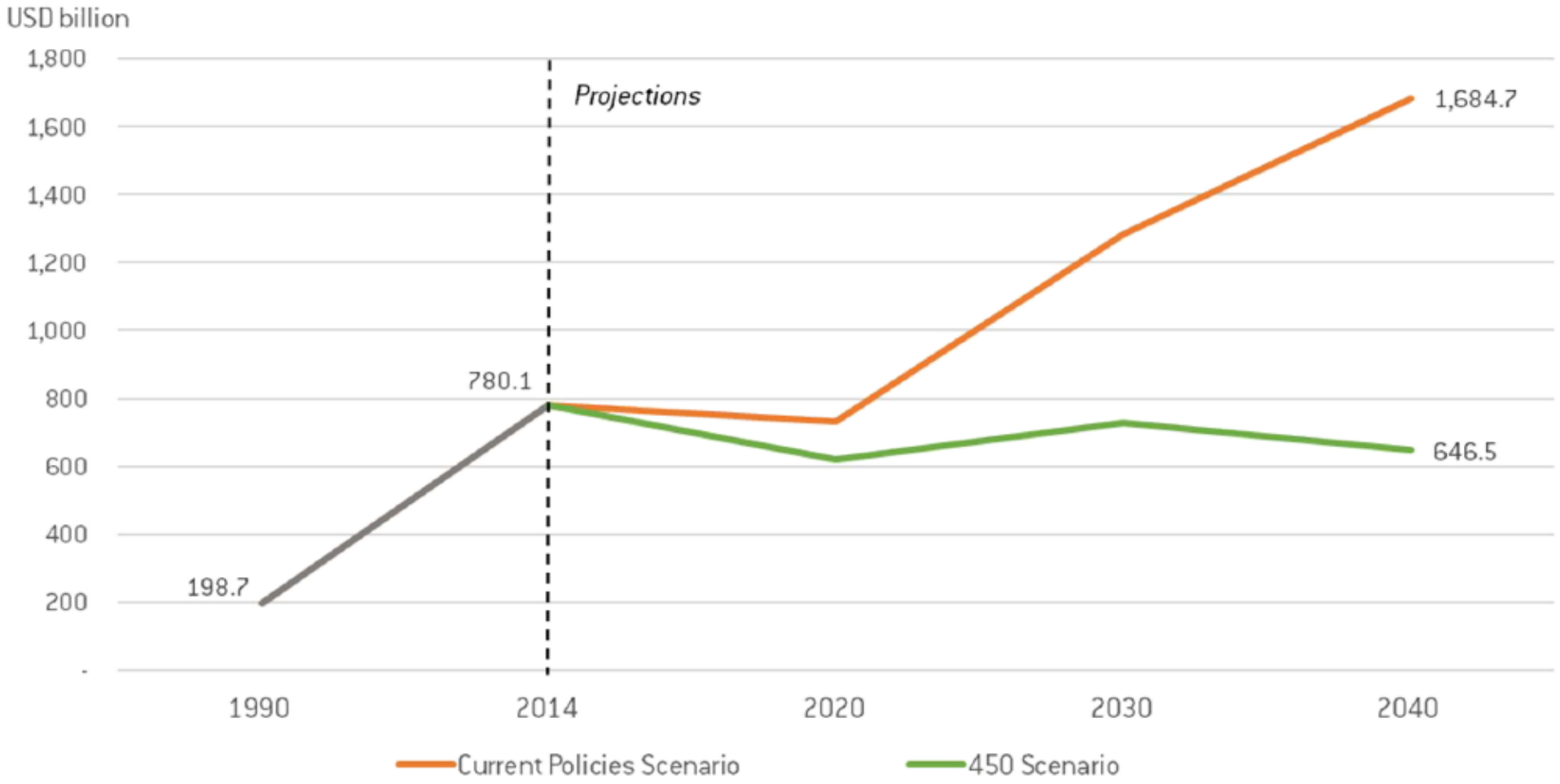
- Current Policy Scenario – oil demand is to increase over the next 3 decades, with Middle Eastern oil exports growing correspondingly.
- 450 Scenarion – oil demand falling after 2020, Middle Eastern oil exports stable at 2020 level to 2040.



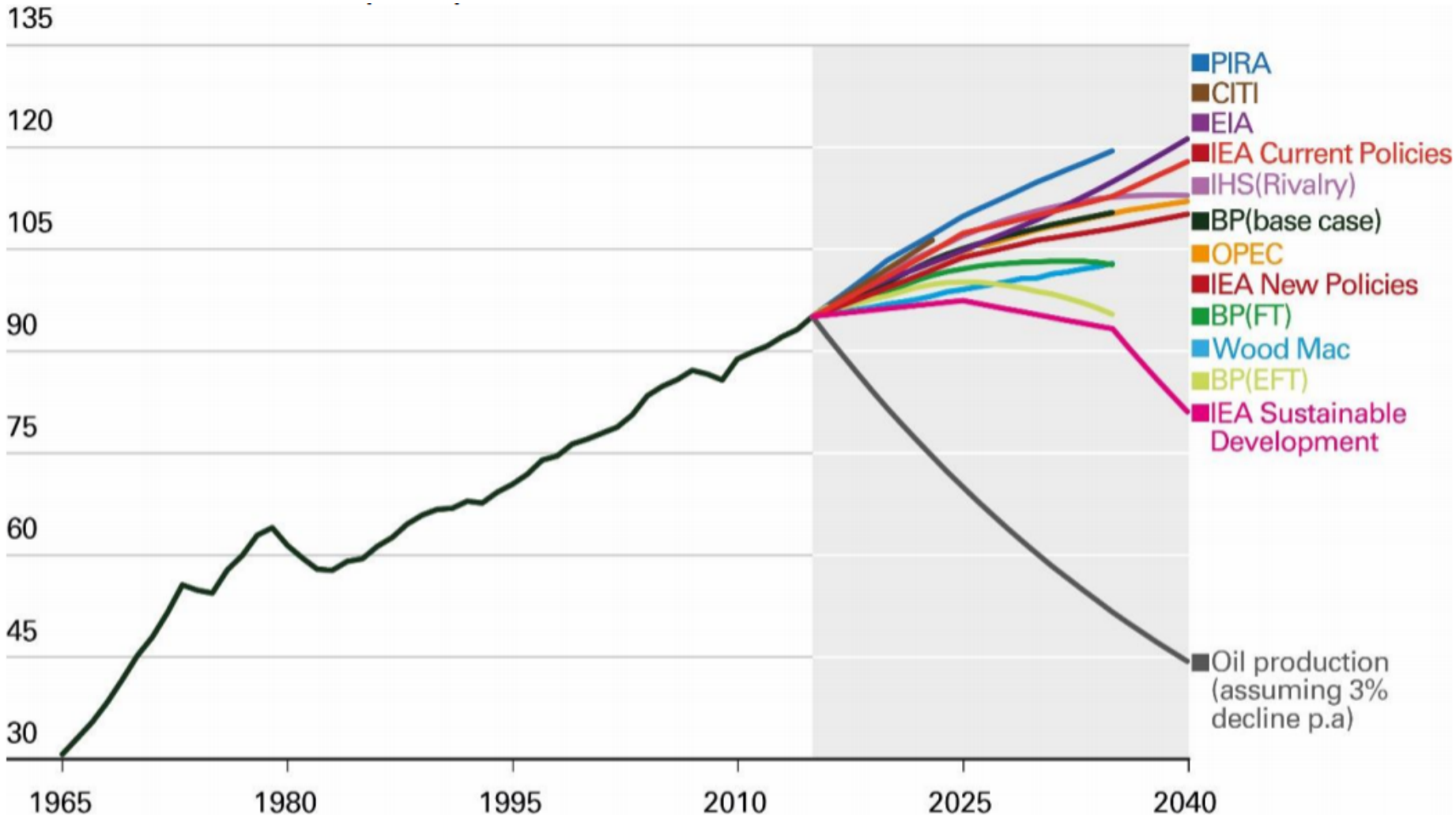
Fossil-fuel import prices by scenario

		New Policies Scenario			Current Policies Scenario			450 Scenario		
Real terms ($2015)	**2015**	**2020**	**2030**	**2040**	**2020**	**2030**	**2040**	**2020**	**2030**	**2040**
IEA crude oil ($/barrel)	51	79	111	124	82	127	146	73	85	78
Natural gas ($/MBtu)										
United States	2.6	4.1	5.4	6.9	4.3	5.9	7.9	3.9	4.8	5.4
European Union	7.0	7.1	10.3	11.5	7.3	11.1	13.0	6.9	9.4	9.9
China	9.7	9.2	11.6	12.1	9.5	12.5	13.9	8.6	10.4	10.5
Japan	10.3	9.6	11.9	12.4	9.9	13.0	14.4	9.0	10.8	10.9
Steam coal ($/tonne)										
OECD average	64	72	83	87	74	91	100	66	64	57
United States	51	55	58	60	56	61	64	53	52	49
European Union	57	63	74	77	65	80	88	58	57	51
Coastal China	72	78	86	89	79	92	98	73	72	67
Japan	59	66	77	80	68	84	92	61	59	53

Middle East forecasted oil revenues, IEA scenarios (real prices)



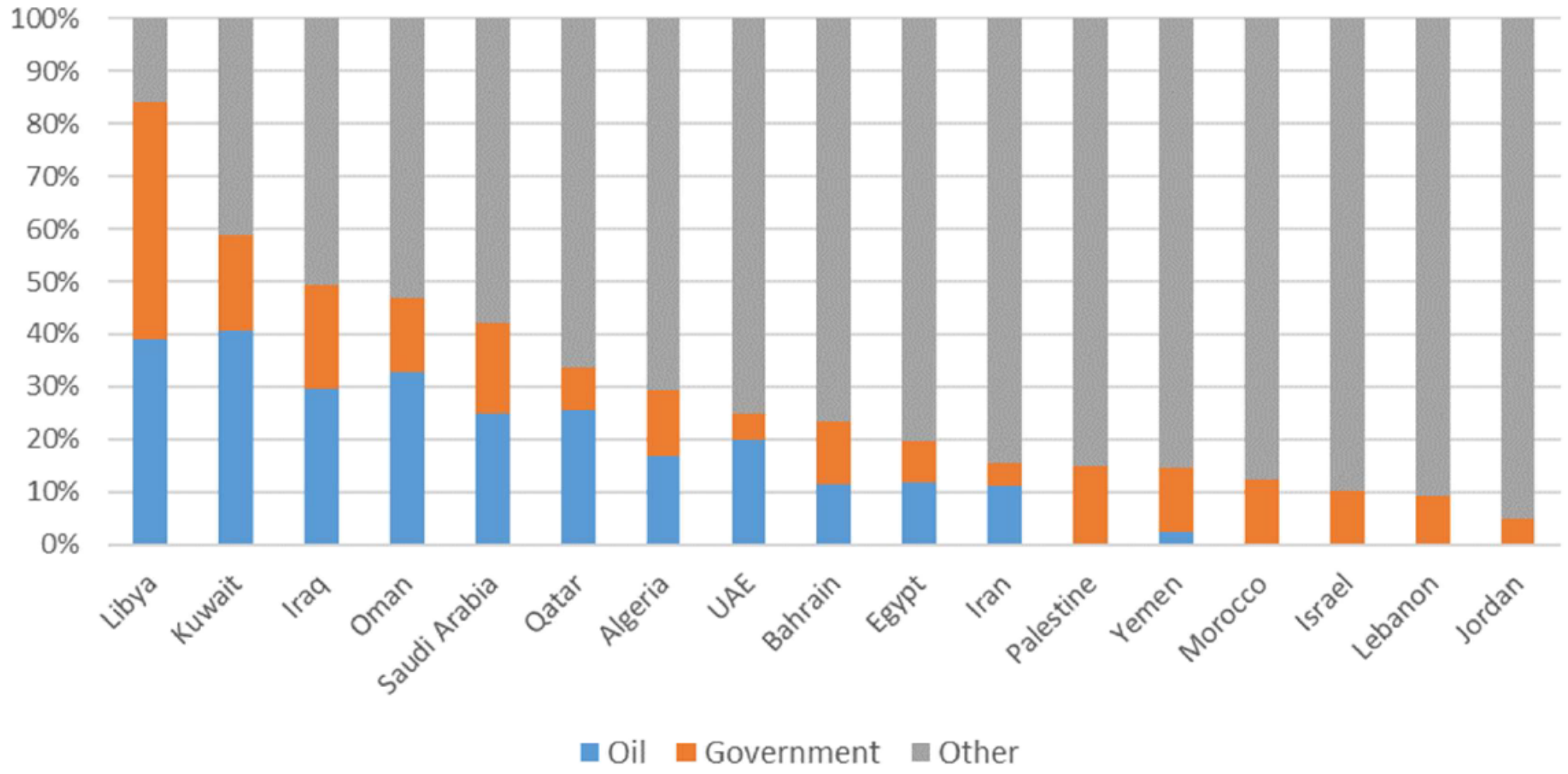
High level of uncertainty



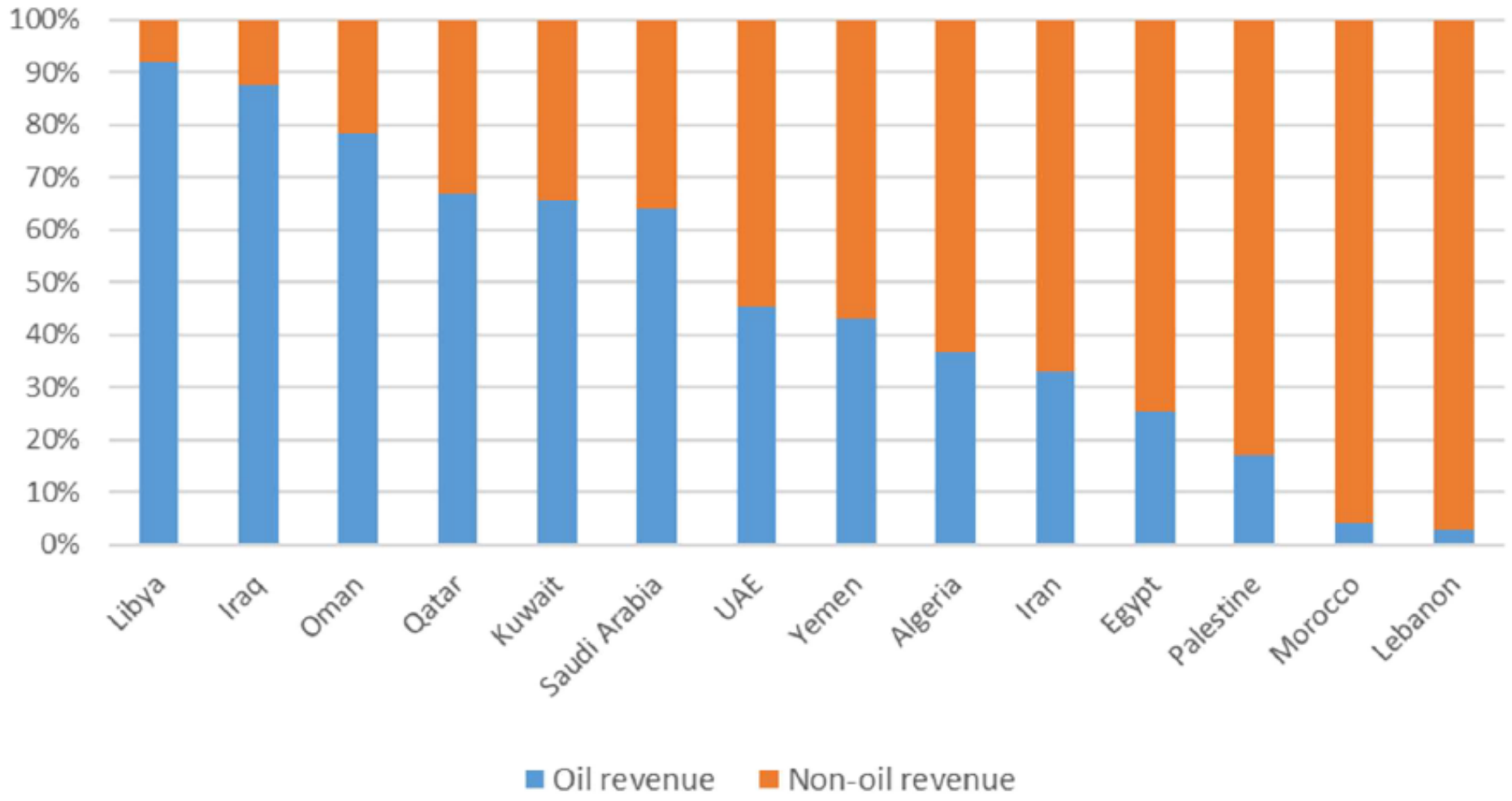
Macroeconomics of the MENA region

- For 5 regional oil exporters (Libya, Kuwait, Iraq, Oman, SA), more than 40% of GDP based on oil and oil-related government activities.
- Four other (Quatar, Algeria, UAE, Bahrain) varies between 20-40%.
- Main sources of manufacturing value-added are refinery, chemical and mining/extractive industries, construction.
- In some MENA countries oil is the primary source of fiscal revenues. Non-oil fiscal revenues, however, often also relate to oil industry (Quatar – practically all investment income and the bulk of corporate income tax from Quatar Petroleum).
- Oil makes more than 50% of total exports from MENA oil exporting countries. Limited economic diversification.

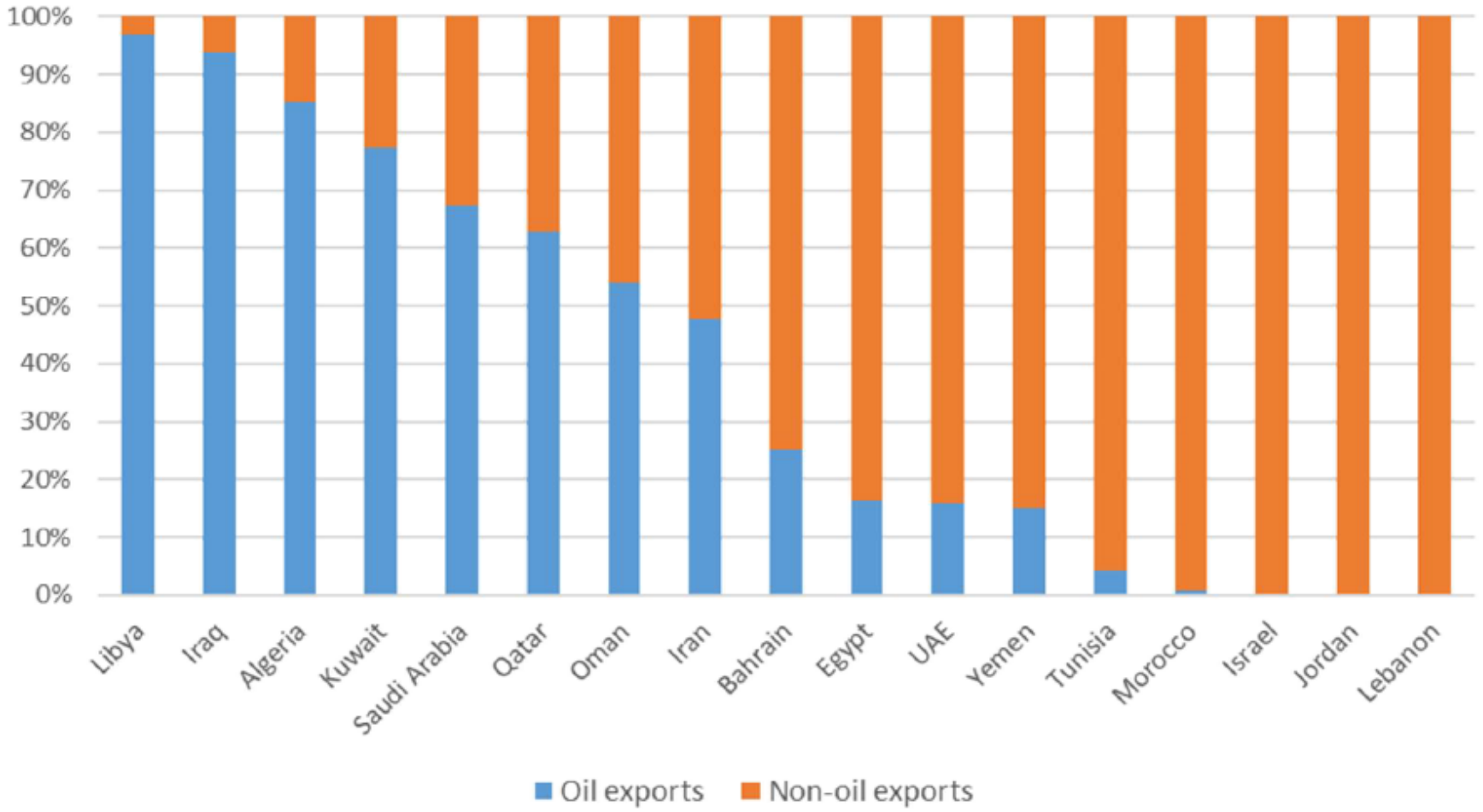
GDP composition of MENA countries, 2016



Oil and non-oil fiscal revenue in selected MENA countries, 2016 (% of general government revenue)

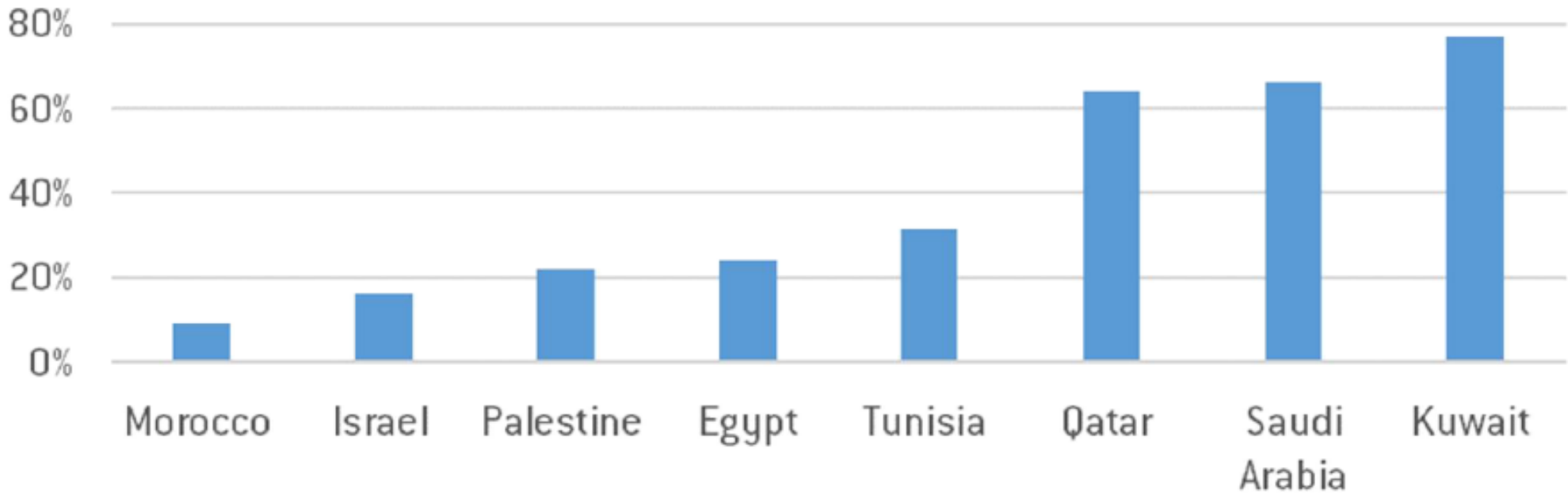


Oil and non-oil exports in MENA countries, 2016



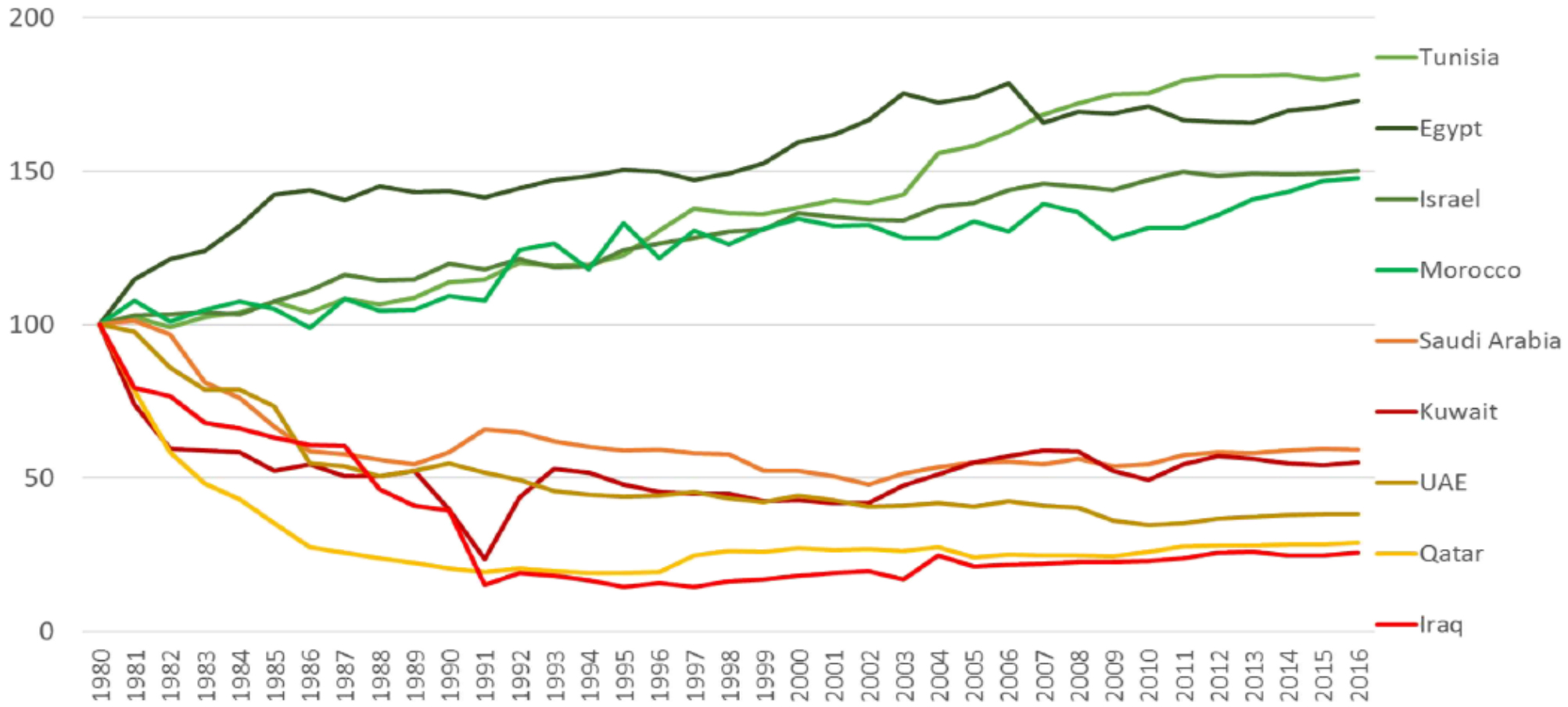
Note: Low shares of oil in exports from the UAE and Bahrain are because non-oil exports include a large share of re-exports.

Public sector employment in selected MENA countries (% of total employment of nationals)

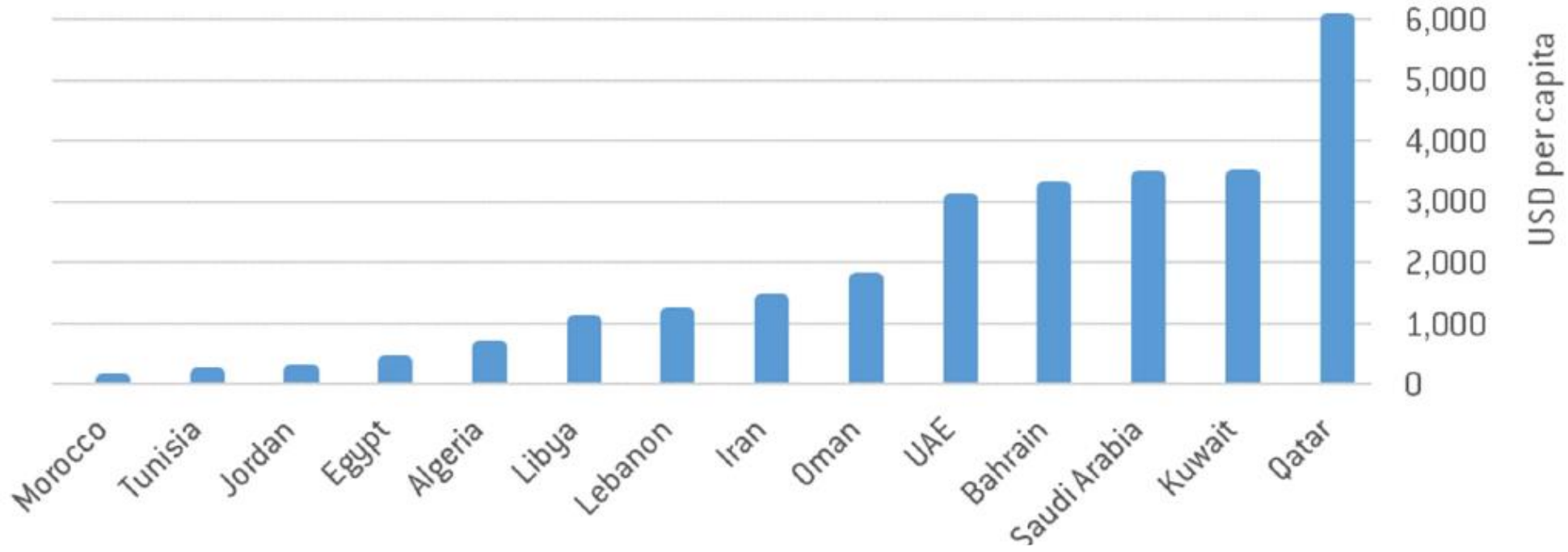


High shares of public employment in usually protected jobs with high wages contributes to low labour productivity of MENA oil-exporting countries. Emphasized by imported cheap non-national labour (since 80s), reducing productivity also in private sector. That prevents its development to internationally competitive form.

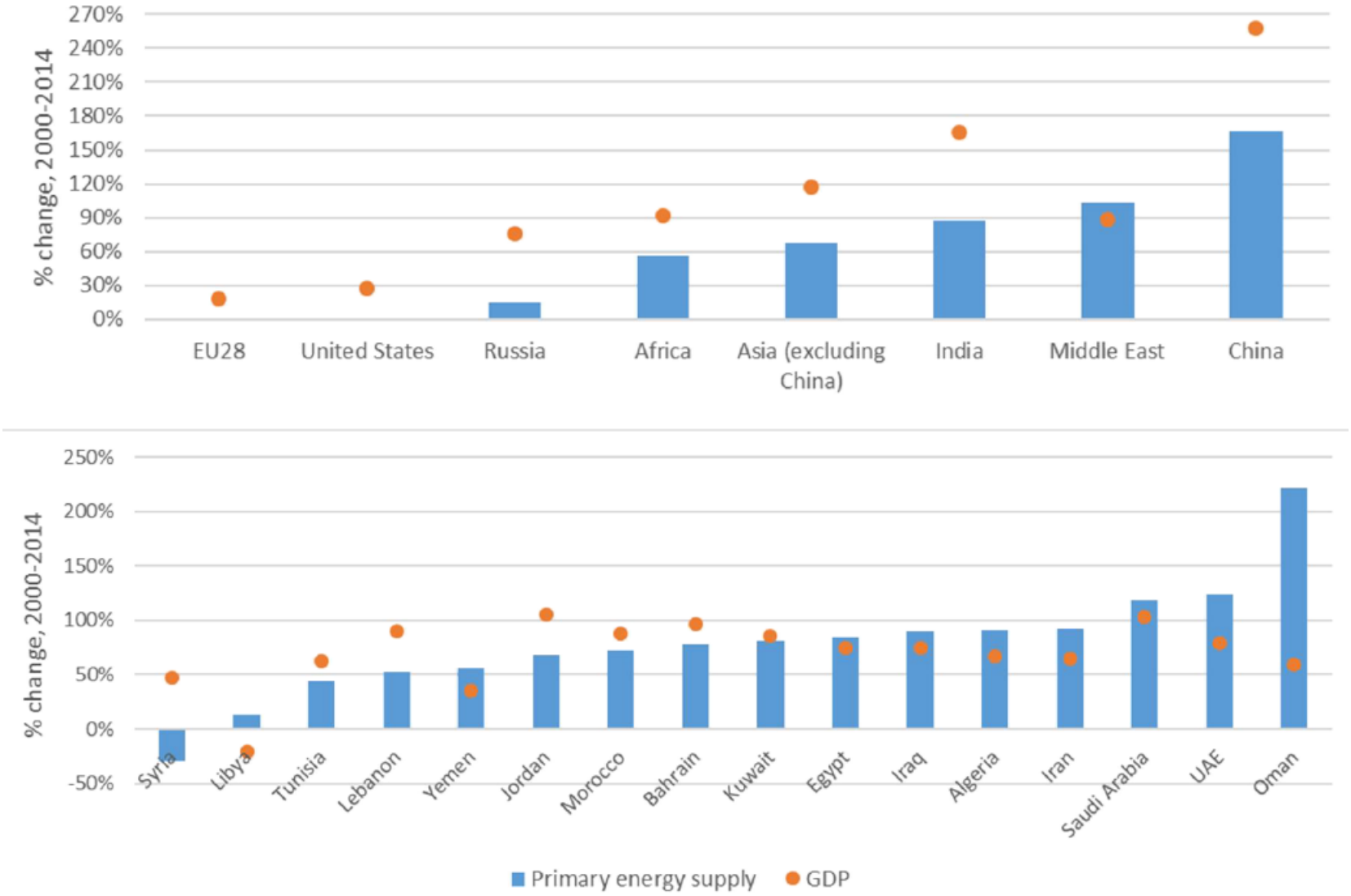
Labour productivity in selected oil-importing and oil-exporting MENA countries



Post tax energy subsidies in selected MENA countries, 2015



Changes in primary energy supply and GDP



Rentier state theory

MENA oil-producing countries (=rentier states):

- Relies on substantial external rent to sustain their economy, reducing the pressure to develop a strong productive domestic sector.
- Have a small proportion of the population engaged in the generation of the rent, while the majority of the population is only involved in the distribution or in the utilisation of it.
- Their governments are the principal recipients of the external rent.

= role of the state is in providing private favours through the ruler´s benevolence.

= income is not related to work and risk bearing, but to chance or situation.

= rentier states are not looking for legitimacy (through democratic representation), but for acceptance of its population.

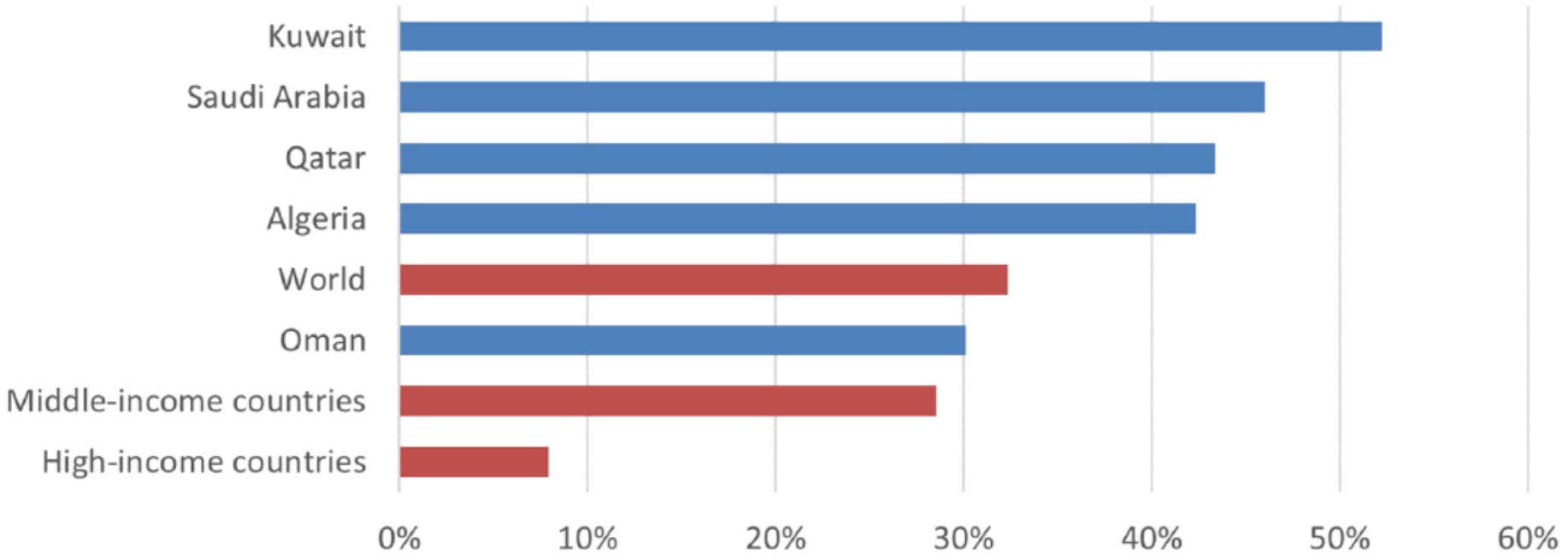
= diversification or going for „ until the last drop“?

Diversification option

- Since 80s, global oil demand rising. Between 2000-2014 oil prices increasing.
- Enough oil for decades – no serious incentives for change.

Projected years of future oil and gas production at 2015 reserve level and average production of last 5 years		
	Oil	**Gas**
Algeria	21	55
Iran	111	196
Iraq	120	More than 200
Kuwait	90	118
Libya	170	137
Oman	16	21
Quatar	37	147
SA	63	83
UAE	74	112

Expected population growth between 2015-2050

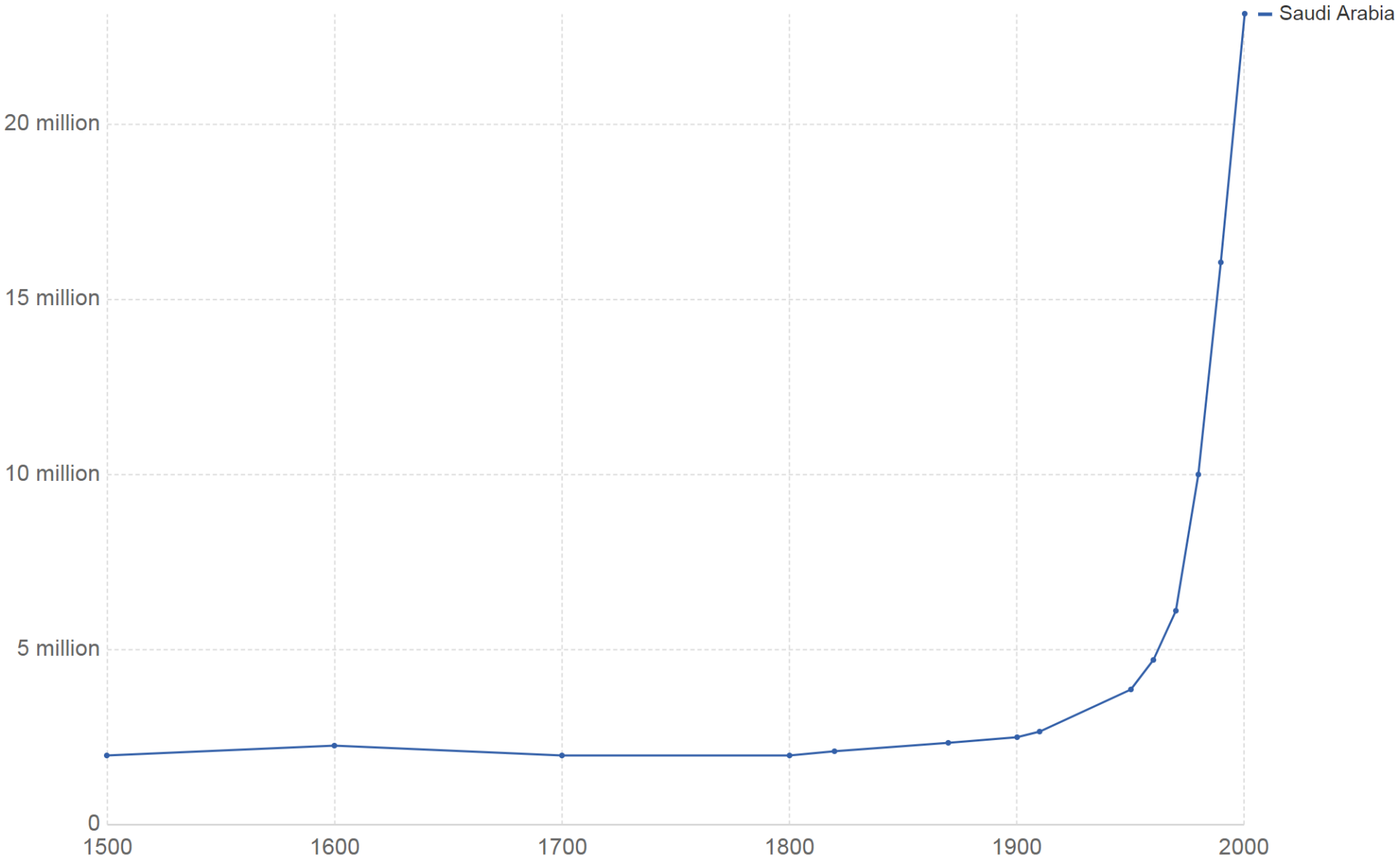


Saudi Arabia

- 80% of budget revenues from oil, 45% of GDP, 90% of earnings. Natives in state sector, 80% of workforce in private sector comes from abroad – both low and high skilled jobs.
- Young population (half of population under 18). ¼ of Saudi under 30 unemployed. Unfitting education. Even if import of worker is limited still shortage of jobs. (Saudis 6x more expensive than foreigners).
- Rigid authoritative regime (royal family), Wahabi religion (Mekka, Medina).
- Shia population (10%), religion tensions. Disputes with Iran.

Population by country

Total Population in the last five centuries (Clio-Infra Data)



Source: Population by Country (Clio Infra)

Reaction to Arab Spring (2011)

- $10.6 billion in new funding for housing loans via Real Estate Development Fund.
- $7.9 billion in funding to increase the capital of the Saudi Credit Bank.
- $266 million to enable social insurance to increase the number of family members covered.
- $320 million to expand social services.
- $933 million to help the needy repair their homes and pay utility bills.
- $127 million to support programs for needy students at the Ministry of Education.
- $3,9 billion to support the General Housing Authority.
- A 15% pay increase for state employees.
- A 50% increase in the annual allocations for charitable organizations.
- 27 million annually alocation to project of the National Charitable Fund.

Vision 2030 (from 2016)

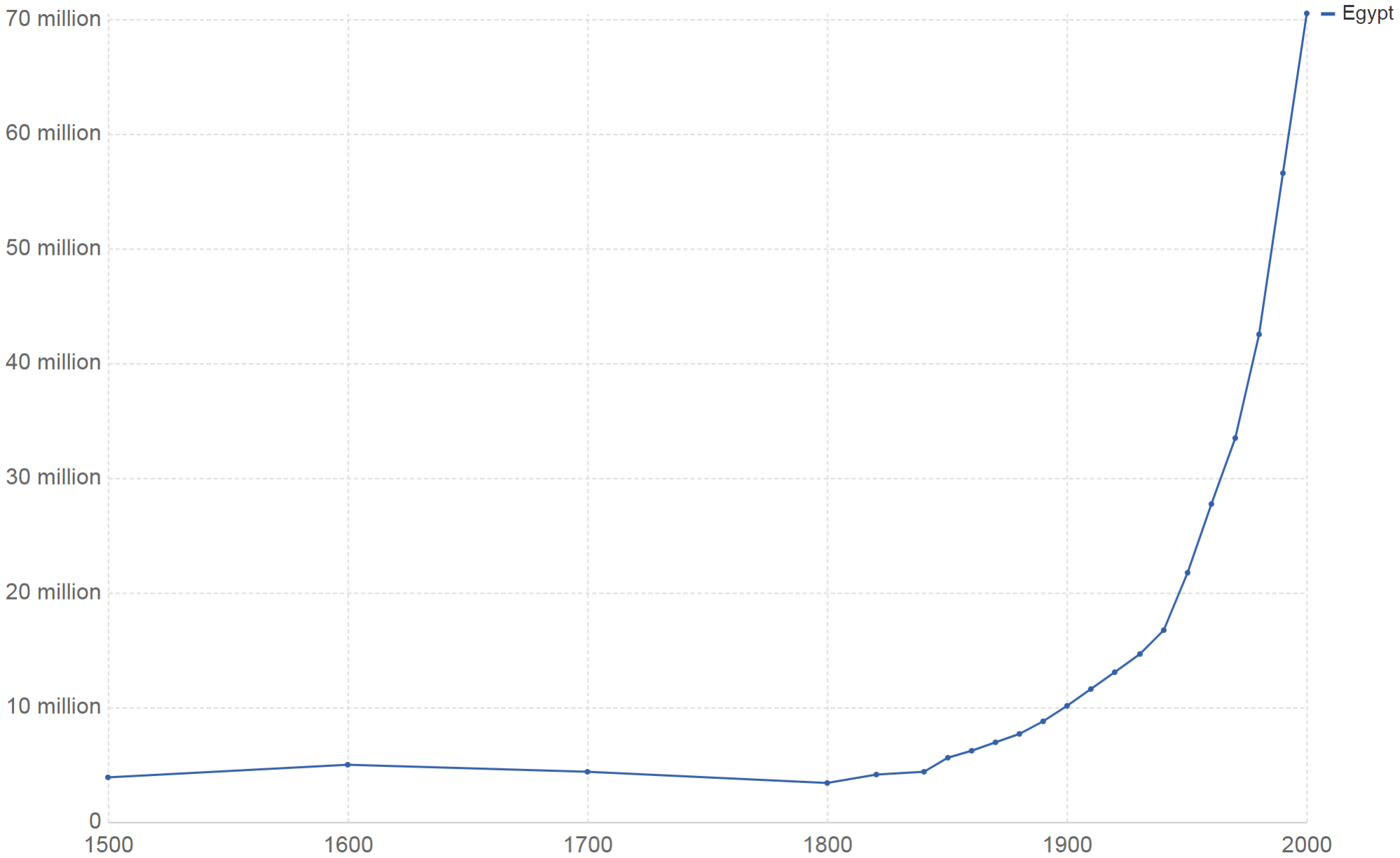
- Increase SME contribution to GDP from 20 to 35%.
- Increase foreign direct investment from 3.8% to 5.7% of GDP.
- Increase the private sector´s contribution from 40-65% of GDP.
- Raise the share of non-oil exports in non-oil GDP from 16 to 50%.
- Increase non-oil government revenue from $50 billion to $350 billion.
- Generate 9.5 GW of new renewable energy.

Egypt

- Population growth increases demand for food and reduces the amount of land for growing this food (population concentrated along the Nile River).
- Import of food, which is subsidized (and energy).

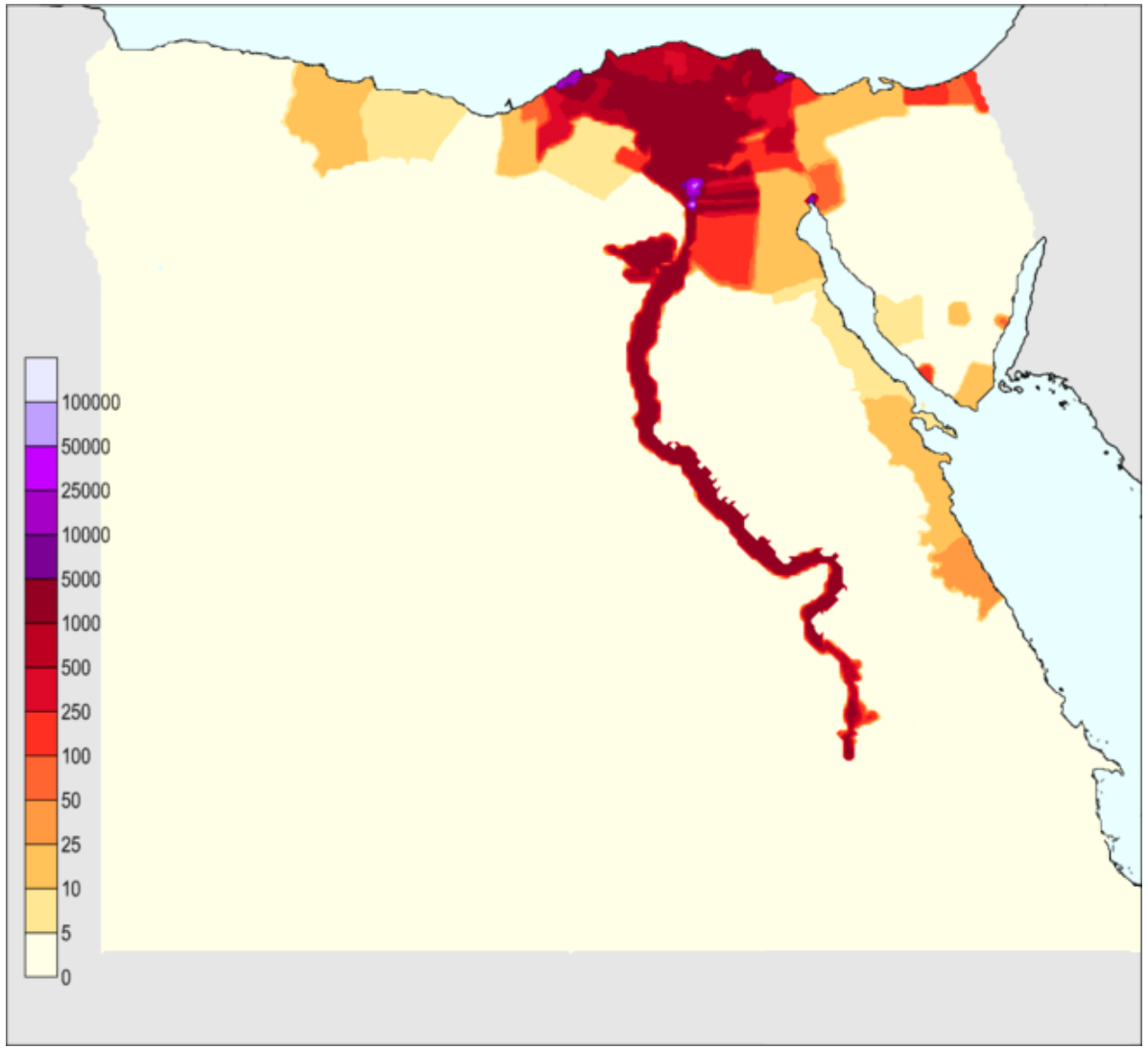
Population by country

Total Population in the last five centuries (Clio-Infra Data)

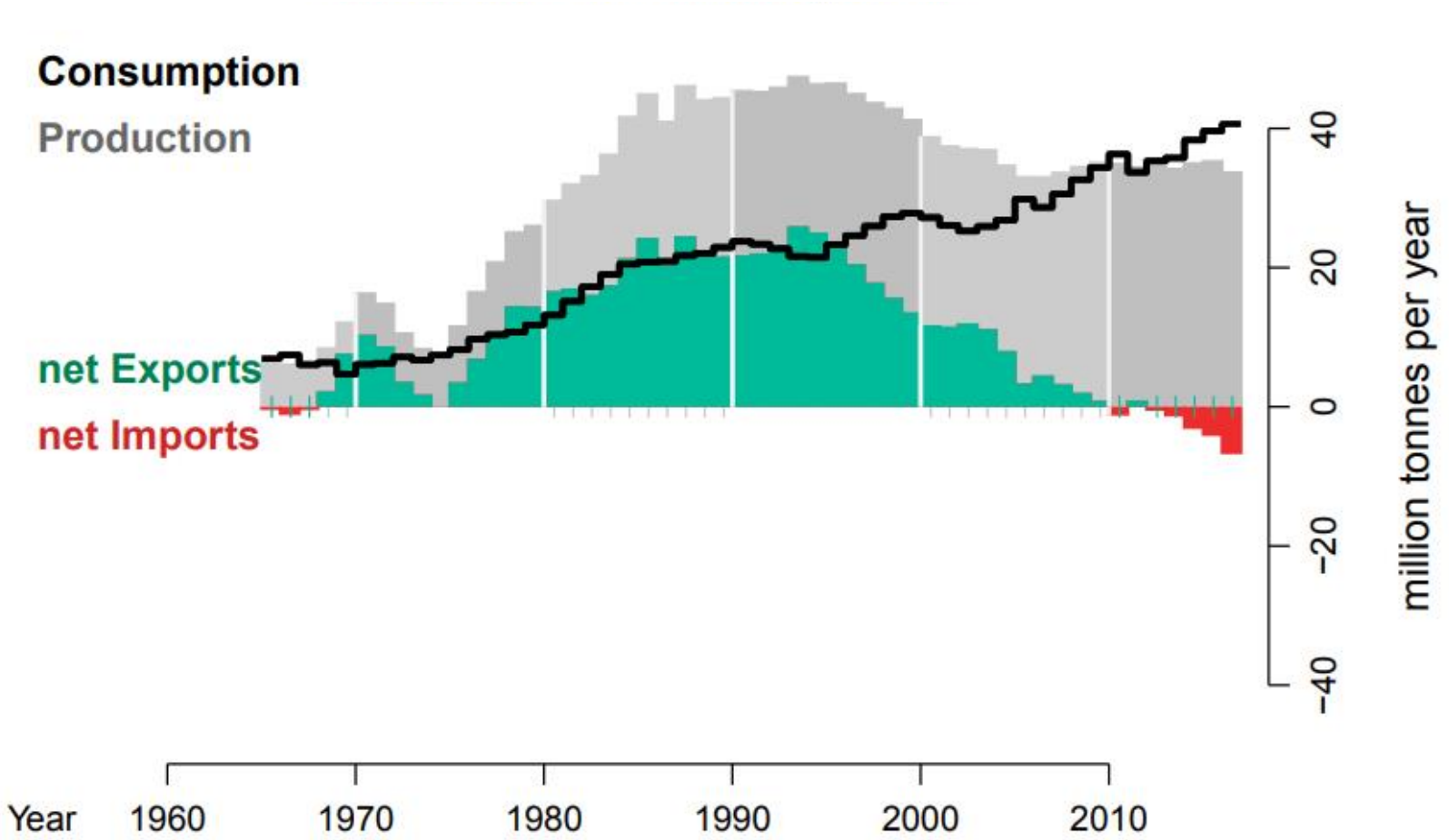


Source: Population by Country (Clio Infra)

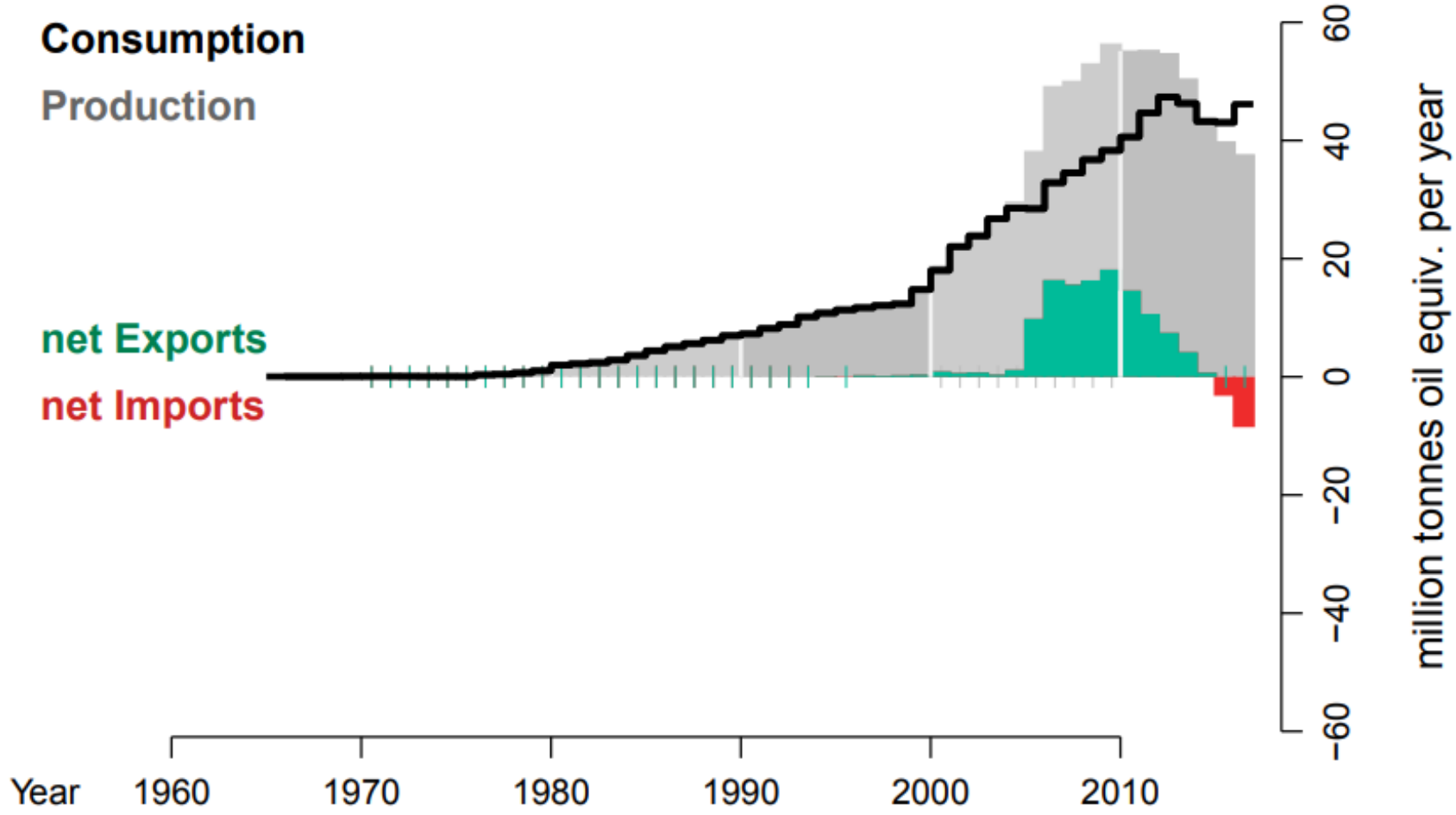
Density of population



Egypt´s oil balance

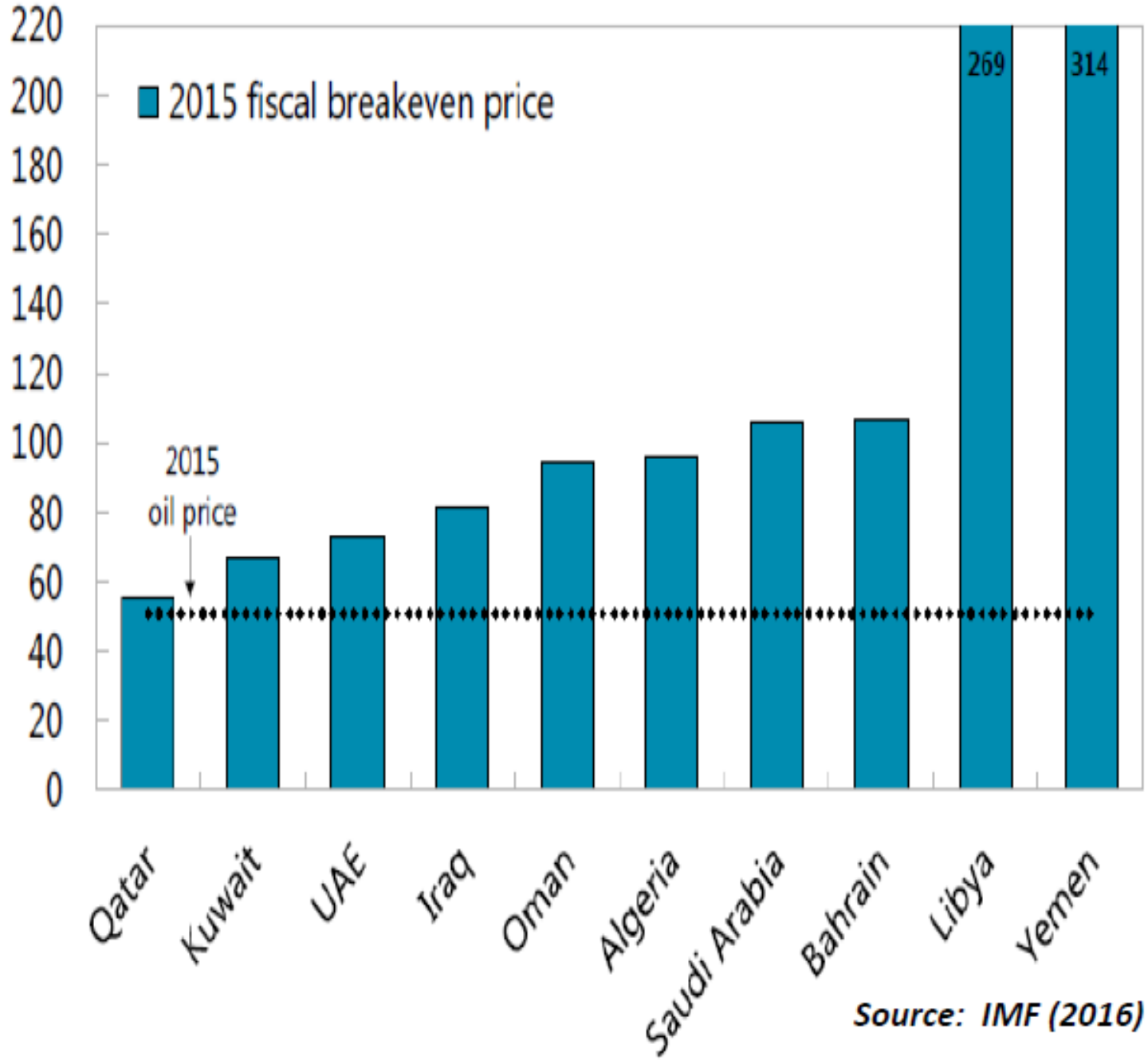


Egypt´s gas balance

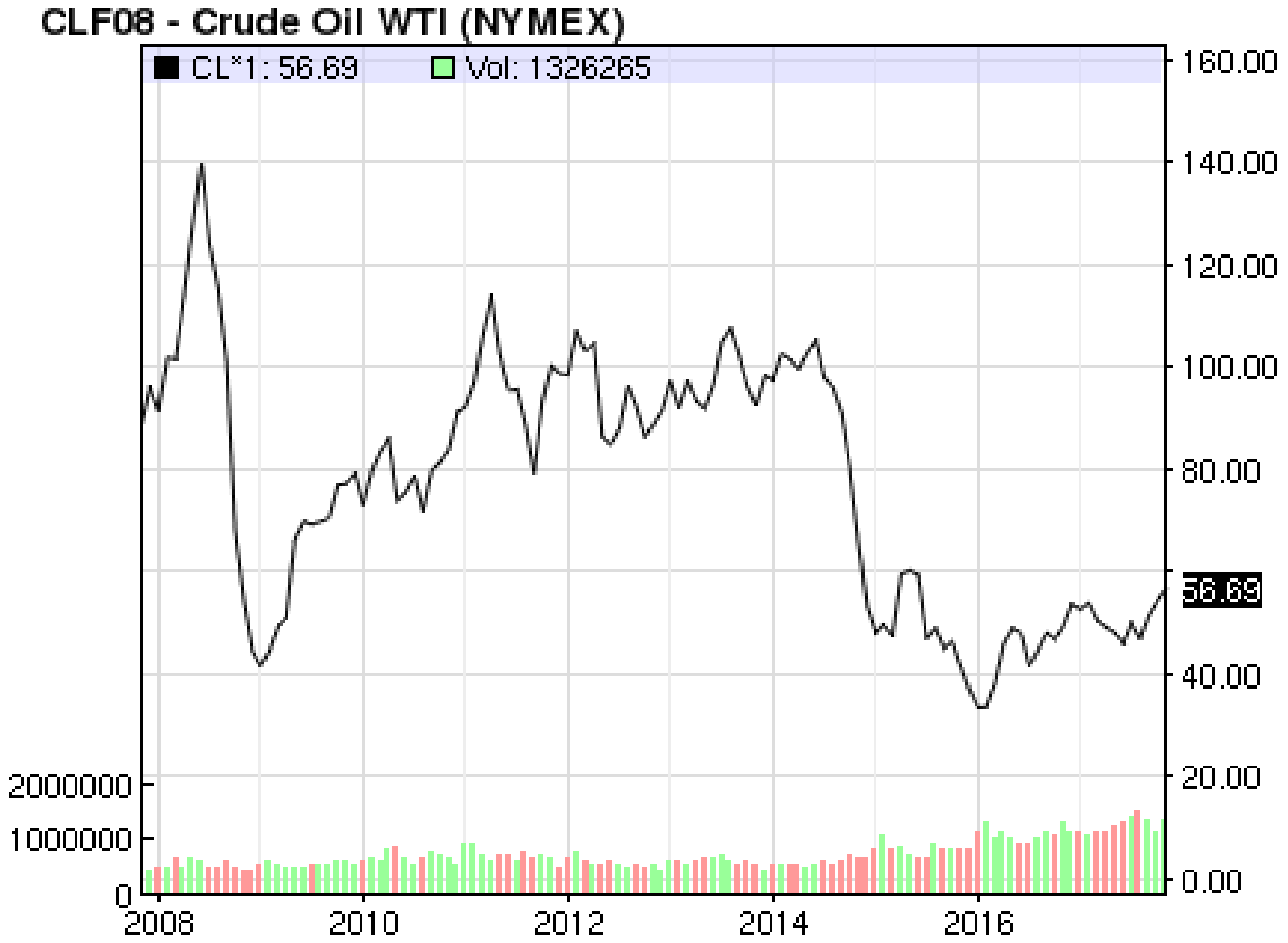


Oil-related sovereign wealth funds

Country	ISO3 code	Region	Value (bn$)	per capita (k$)	% GDP	% Gvt revenue
United Arab Emirates	ARE	Middle-East	1214	134	304%	805%
Saudi Arabia	SAU	Middle-East	792	26	106%	284%
Kuwait	KWT	Middle-East	592	158	362%	527%
Qatar	QAT	Middle-East	256	118	122%	257%
Iran	IRN	Middle-East	62	1	15%	100%
Oman	OMN	Middle-East	40	9	49%	103%
Iraq	IRQ	Middle-East	1	0	0%	1%
Libya	LBY	North Africa	66	11	160%	392%
Algeria	DZA	North Africa	50	1	23%	70%
Angola	AGO	Sub-Saharan Africa	5	0	4%	10%
Nigeria	NGA	Sub-Saharan Africa	1	0	0%	2%
Russia	RUS	Other: CIS	139	1	7%	20%
Kazakhstan	KAZ	Other: CIS	79	5	36%	149%
Azerbaijan	AZE	Other: CIS	37	4	50%	128%
Canada	CAN	Other: Americas	18	0	1%	3%
Mexico	MEX	Other: Americas	6	0	0%	2%
Venezuela	VEN	Other: Americas	1	0	0%	1%
Norway	NOR	Other: Europe	848	165	170%	316%



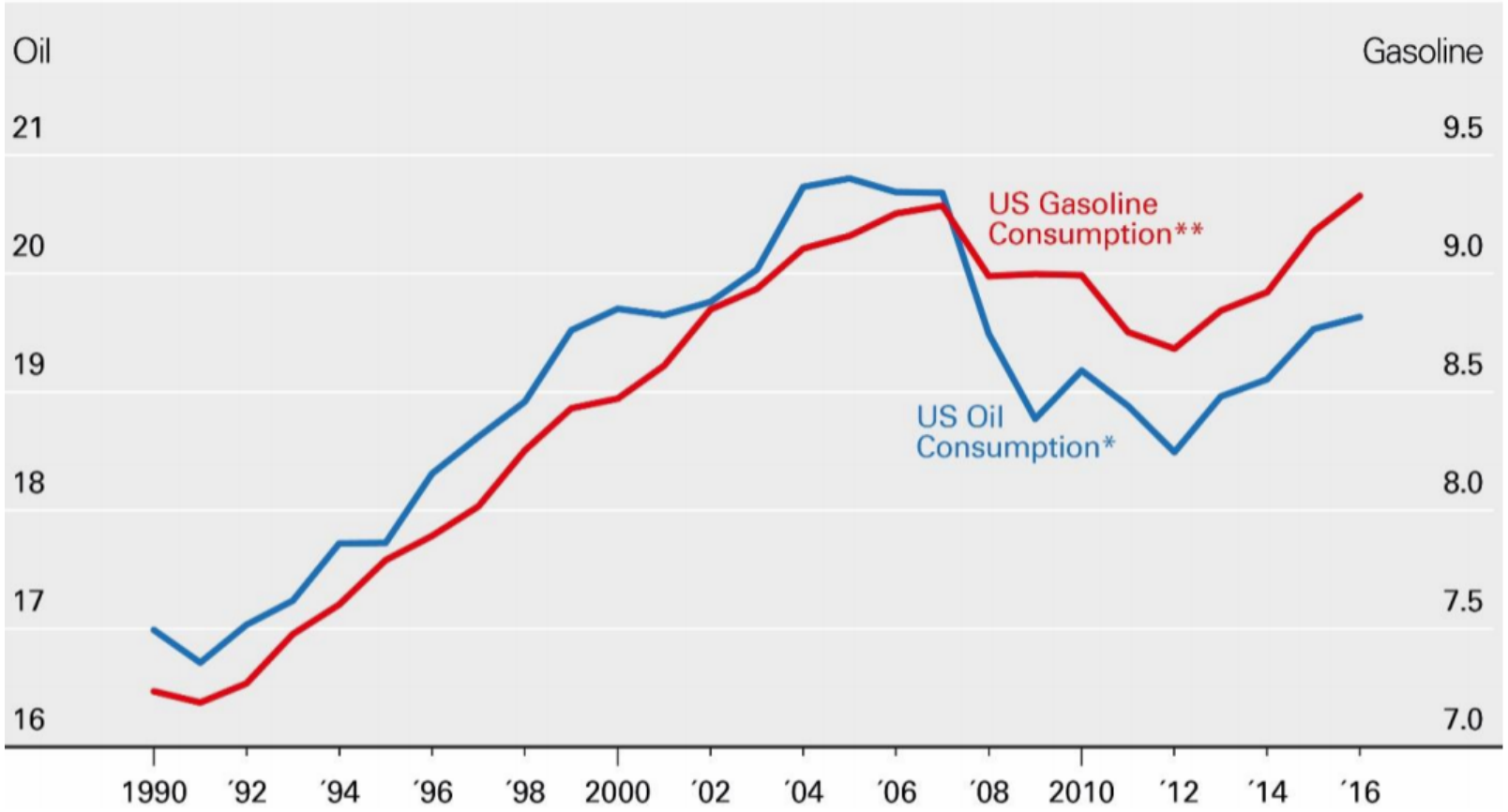
Source: IMF (2016)


CLF08 - Crude Oil WTI (NYMEX)
CL*1: 56.69
Vol: 1326265
160.00
140.00
120.00
100.00
80.00
56.69
40.00
20.00
0.00
2000000
1000000
0
2008
2010
2012
2014
2016

Future of the region

- Multiple peaks possibility.
- Oil still important part of energy mix, high improbability of rapid drop in consumption (energy transitions are /usually, not always/ slow)
- Large investments in oil extraction needed to sustain the production.
- Need for diversification – oil rent needs to be invested in reasonably fast diversification from single commodity economies. New (productive) industries need to be built with the comparative advantages in mind. Subsidy reforms and energy efficiency reforms are needed.
- Produce as much as possible to monetize reserves quickly? Should producers keep the price relatively low?

International relation consequences



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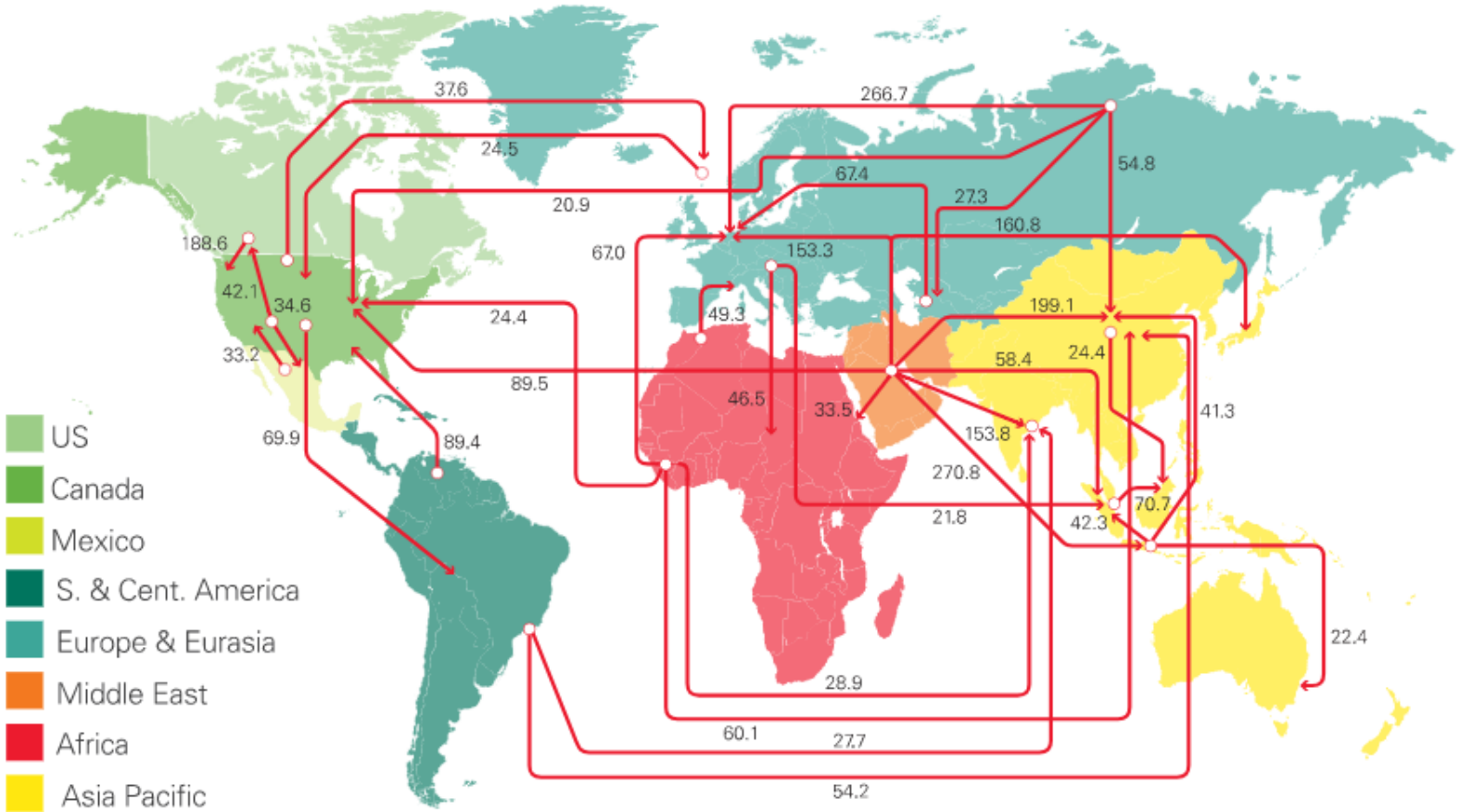
International relation consequences

- Keohane, Nye
  - Interdependence – relationship with reciprocal (although not necessarily symmetrical) costly effects of transaction.
  - Asymetrical interdependence as a source of power – a less dependent actor in a relationship often has a significant political resource, because changes in the relationship, which the actor may initiate or threaten with, will be less costly to him than to his parthers.
  - Sensitivity – degree of responsiveness within an unchanged policy framework - how quickly do changes in one country bring costly changes in another, and how great are the costly effects?
  - Vulnerability – relative availability and costliness of the alternatives.

Oil major trade movements 2016 (million tonnes)



Natural gas major trade movements 2016 (bcm)