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Version 2

The OPEC/MENA/Arab nexus and the missing democratic transition

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Abstract:

The democratic transition is a strong relation in the data, as analyzed elsewhere. This paper deals with the only large exception: The 26 countries in the OPEC/MENA/Arab nexus have no democratic transition. The explanation is complex and controversial as it requires (at least) two intertwined theories: the *oil theory* and the *Muslim culture theory*. More than half of the two country groups overlap, and in addition all but two of the MENA countries are Arab, with similar language, religion, history, and culture, giving spatial effects. Thus, it is difficult to untangle the effects, but it is still demonstrated that both theories matter, so that the Muslim oil countries are especially far from democracy.

Keywords: Democratic transition, the OPEC/MENA/Arab exception

Jel: P52, Q43, R12, Z12

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1. Introduction

In the theory of economic growth, a transition is the change from one steady state to another. Economic history knows of two basic steady states: The traditional and the modern (see Maddison, 2003, and Galor, 2011). Consequently, this paper sees a ***transition*** as a systematic change in a socioeconomic variable, when a country develops from the traditional to the modern steady state. It is a function of development as proxied by income. The full process – the Grand Transition – takes more than a century and consists of many confluent transitions.

The democratic transition is a typical transition. It is a strong underlying trend in the political system of the ***Main*** group of most countries, see section 2. Poor countries are autocracies of roughly the same type. The political system turns into democracy during the process of modernization. This is due to transitions undermining two of the main pillars of the old power structure: the Feudal aristocracy and the Church. The democratic transition is overlaid with much short-run fuzziness, but it is still the core path of the political system, and thus an important part of the skeleton of development. The story of the democratic transition is told elsewhere, see the summary in section 4.

The subject of this paper is the only major exception: The ***OMA*** group of the 26 OPEC-MENA-Arab countries has no democratic transition. It has caused the development of a political gap between the OMA and the Main groups as shown in Section 2. Thanks to the narrowness of the 95% confidence intervals around the diverging curves for the Main and the OMA samples, both cases must have a *general* explanation. Section 4 presents two intertwined explanations for the OPEC exception. One builds on the systematic change in the power structure as mentioned. It explains the trends in both samples by the same mechanism, which works differently in the Main and OPEC samples, receiving large resource rents from abroad.

The other theory addresses the fact that also the non-oil countries in the MENA-region of the (Middle East and North Africa) have a weak transition. While parts of the explanation may be due to the spatial factor, it is also likely that a cultural factor matters, as discussed in section 4. This explanation notes that the 18 MENA countries have been Muslim for more than a millennium. Other Muslim countries have been so for a shorter period. Section 2 briefly consider the full Muslim sample.

The tool used to reveal the long run trends in multi-country samples is kernel regression on the unified panel of the sample. The panel $(P, y, t)_i$, where i is country and t time, is unified to become the vector $(P, y)_j$ with it elements in the order y. The kernel is $K^P(y, 0.3)$ for P

explained by *y* with the fixed bandwidth 0.3. The kernel curve is a smoothed moving average. The interpretation presumes equivalence: Wide cross-country samples reflect the long-run, and thus give the same picture as long-run time series.[2] No economic theory and few restrictions on its form are used in the calculation. Hence, it is a test of a theory if a curve with the form predicted can be drawn within the (95%) confidence intervals. It is a strong test under two conditions: (i) The intervals are narrow, and (ii) the prediction is distinct. These conditions both hold for the democratic transition. Condition (i) also shows if the unification is justified.

Section 2 shows the facts using the said tool: The data for the Main country group gives a neat transition curve  . The data for the OMA countries gives a different curve. The difference is large and growing. It is discussed in a literature surveyed in section 3.

For easy reference Table 1 shows the main terminology, the variables, and the samples analyzed, while Table 2 and 3 lists the countries of the OMA sample in groups and sub-groups. The documentation for everything claimed in the paper in too bulky to present within the frames of a standard paper, thus a Net-Appendix – ***NA*** – is available, see references.

Table 1. Terminology, variables and samples

Part 1 terminology for transitions. [a)]				
Steady state	Growth equilibrium. Everything grows at the same rate, so all ratios are constant			
Traditional	Steady state of all countries before 1750 and low-income countries (LICs) until recently			
Modern	Steady state of high-income countries today (HICs), with the OPEC exception			
Transition	Change diverging from the traditional steady state and later converging to the modern one			
Part 2 data.				
P&V	indices for the political system. From the Polity and V-Dem projects, see references			
P	*Polity*(2). Scale: integers in the closed interval [-10, 10], from authoritarian to democratic			
V	*Polyarchy.* Scale: 2-3 decimals in the open interval]0, 1[, from authoritarian to democratic			
GDP	Gross Domestic Product, in fixed PPP, purchasing power parity, prices			
gdp	GDP per capita From the Maddison Project, see references			
y	*Income*, the natural logarithm to *gdp*. One logarithmic point is a *gdp* change of 2.72 times			
Part 3a. Samples discussed. Unified panel data. For 1800-2018, see Figures 1 and 3				
Sample	Countries	Observations		Reference
OMA	26	1,749	The data of the paper	Table 1 and Appendix table
Main	130	11,583	For comparison only	See Paldam (2021, 2024b)
Part 3b. Alternative samples. Used in section 2.4 only				
Muslim	44	9,891	See Figure 4	See section 2.4
Non-Muslim	112	2,441	See Figure 4	

The samples are limited to observation for formally independent countries, where all variables have data, i.e., observations where polity is zero are omitted. The data were downloaded in the Fall of 2023. The countries and years covered are listed in Tables 2 and 3.

[2] When the data allow this should be confirmed as it is for the democratic transition see Paldam (2021, 2024b).

Table 2. The 26 countries in the OMA sample divided into three sub-samples

			Muslim	Polity, *P*			Polyarchy, *V*		
Nr	Country	Group	majority	*N*	Span	Start	*N*	Span	Start
			(Sg1) The eight countries of OPEC-only						
1	Angola	Africa	No	44	44	1975	44	44	1975
2	Congo Br	Africa	No	59	59	1960	59	59	1960
3	Ecuador	La Am	No	120	149	1870	122	149	1870
4	Equ. Guinea	Africa	No	51	51	1968	51	51	1968
5	Gabon	Africa	No	59	59	1960	59	59	1960
6	Indonesia	Asia	Yes	63	70	1949	70	70	1949
7	Nigeria	Africa	?	58	59	1960	59	59	1960
8	Venezuela	La Am	No	189	189	1819	190	200	1819
			(Sg2) The eight countries of MENA-only						
1	Egypt	Arab	Yes	69	69	1850	72	199	1820
2	Jordan	Arab	Yes	66	66	1953	66	66	1953
3	Lebanon	Arab	Yes but	39	69	1950	69	69	1950
4	Morocco	Arab	Yes	66	199	1820	66	199	1820
5	Syria	Arab	Yes	66	69	1950	69	69	1950
6	Tunesia	Arab	Yes	60	60	1959	63	63	1956
7	Turkey	Narab	Yes	99	100	1820	100	199	1820
8	Yemen	Arab	Yes	60	69	1950	69	69	1950
			(Sg3) The 10 countries of the Overlap group						
1	Algeria	Arab	Yes	57	57	1962	57	57	1962
2	Bahrain	Arab	Yes	48	48	1971	48	48	1971
4	Iran	Narab	Yes	70	199	1820	70	149	1820
3	Iraq	Arab	Yes	62	69	1950	69	69	1950
4	Kuwait	Arab	Yes	55	56	1963	69	69	1950
6	Libya	Arab	Yes	60	68	1951	68	68	1951
7	Oman	Arab	Yes	69	69	1950	69	69	1950
8	Qatar	Arab	Yes	48	48	1971	48	48	1971
9	Saudi Arabia	Arab	Yes	69	69	1950	72	196	1823
10	UAE	Arab	Yes	46	48	1971	46	48	1971

OPEC is the Organization of Petroleum Exporting Countries. MENA is the Middle East and North Africa. Bahrain and Oman are added to the OPEC group, as they are close to OPEC. It also makes OPEC and MENA symmetrical, with 18 countries in each group. MENA means Middle East and North Africa. The gray shading are for the countries without a Muslim majority. The two non-Arab MENA countries Iran and Turkey are classified with **Narab**. Both countries have had long recent periods of secularization, but now Iran is a Muslim theocracy. The sample holds 16 Arab countries. The League of Arab States includes Comoros, Djibouti, Mauritania, Somalia, and Sudan. These borderline countries are not included in the present analysis. It also includes Palestine that is excluded as it not an independent country.

Table 3. Summary counts for the groups and sub-groups of the 26 OMA countries

		Countries	Obs.	Group or sub-group	Figure
(G1)	Group 1	18	1,224	**OPEC**, present and former OPEC members	5
(G2)	Group 2	18	1,107	**MENA**, Middle East and North Africa	5
(G3)	Group 3	16	940	**Arab**, the MENA countries except Iran and Turkey	5
(Sg1)	Sub-group 1	8	642	**OPEC-only**, OPEC but not MENA	6
(Sg2)	Sub-group 2	8	525	**MENA-only**, MENA but not OPEC	6
(Sg3)	Sub-group 3	10	582	**Overlap**, both OPEC and MENA	6

Group G1 consists of sub-groups 1 and 3. Group 2 consists of sub-groups 2 and 3.

2. Some stylized facts

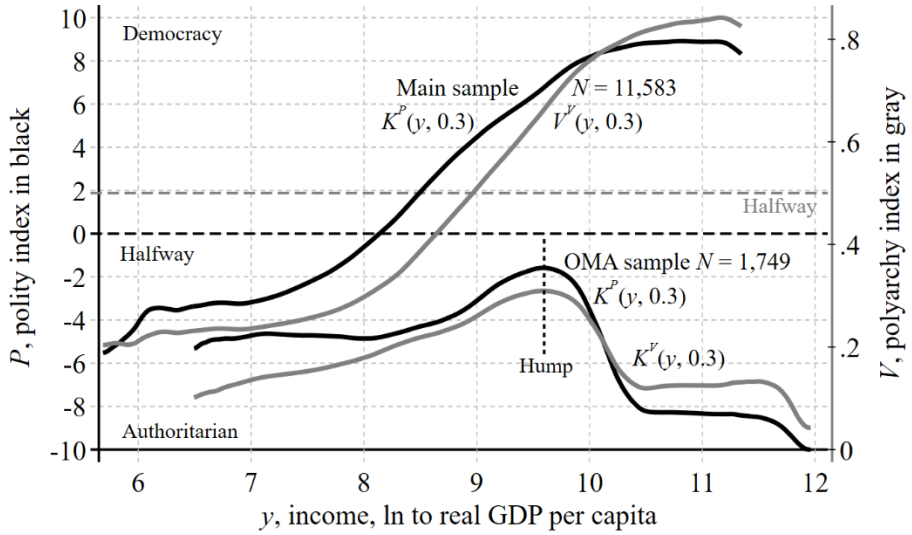
2.1 The democratic transition and the OMA exception[3]

Recall that $K^P(y, 0.3)$ is the kernel for P explained by y with the bandwidth 0.3. Figure 1 gives the kernel regressions, $K^P(y, bw)$ and $K^V(y, bw)$, for the Main and the OMA samples. The classification of Table 3 is covered by Figure 5 for the three groups and Figure 6 for the three sub-groups. The curves for P, polity, and V, polyarchy, are qualitatively similar.

The two curves for the Main sample show perfect transition curves. There is indeed a strong democratic transition in the main sample. The two OMA-curves differ in three ways: (i) They are fully in the lower, authoritarian, half of the picture, (ii) They have a hump-shape, with a peak midway, and (iii) They have a weakly negative trend. The gap between the curves for the samples may be measured in % of the range of the indices. It grows from 10% at low income to no less than 75% at high income.

The curves are calculated for all available data, but they are very robust to sub-samples of the data, e.g., they are very similar if the samples are started in 1960, when OPEC was formed, see NA (Net-Appendix), which also reports the 95% confidence intervals. For the main sample they are so close to the curve that they are hard to see. The confidence intervals for the two samples do not overlap.

Figure 1. Kernel regressions explaining the *P&V* democracy indices by y, income

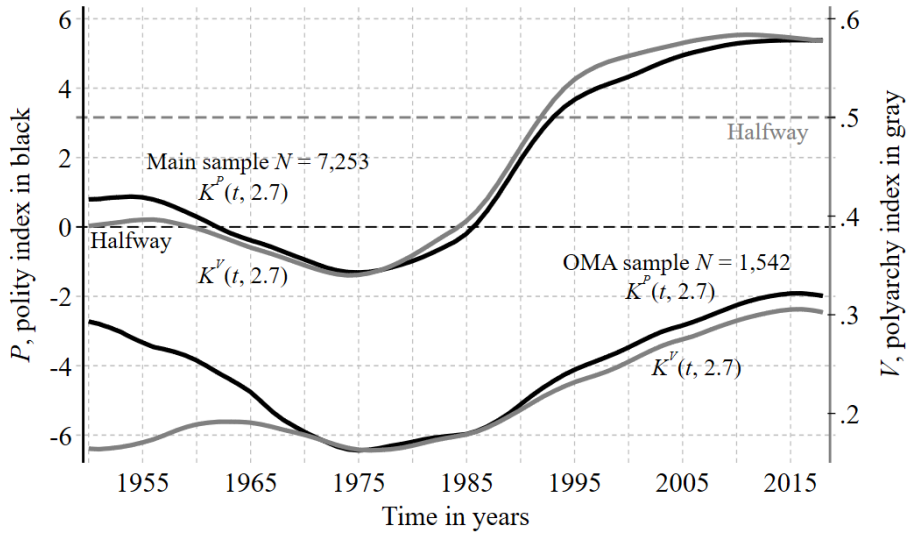


[3] This section builds on prior work that concentrate on the Main sample, show the robustness of the curve, discuss the kernel technique used, and provide evidence that the main direction of causality is from income to the political system; see Paldam (2021, 2024a, 2024b). The NA (Net-Appendix) gives additional evidence for the OMA sample.

2.2 The development over time

The transition is a function of income, but income grows over time, so the transition leads to a secondary development in the democratic indices over time as Figure 2 shows. The curves for the two samples are similar in form, but once again the curves for the two samples do not overlap. The OMA curves are much lower and show smaller changes. Furthermore, the curves over time have substantially larger confidence intervals than the curves over income (see NA). Thus, the transition curves are better determined as they should, given that they are closer to the explanatory theory. Also, while the curves for Figure 1 only change marginally when the period is shortened, this is not the case for Figure 2, where the curves for the thin data from 1800-1950 show large fluctuations, that are hard to interpret, so here time is started in 1950.

Figure 2. Development over time of polity and polyarchy in the OMA and Main samples



While the relation is clear for the main sample where the transition is strong, it is more dubious for the OMA sample, where the trend over time is less clear, especially since the curves have moved downward after 2018. The Polyarchy index now goes to 2023 and so does the Freedom House index. The updates are reported in the NA. While the polyarchy index shows a small fall the fall is substantial in the Freedom House index. Pt the polity index is not updated.

2.3 The frequency distribution of the observations of the samples

Figure 3 looks at the frequency distributions for Main and the Arab samples. The two sets of distributions are very different both across groups and indices. Polity scores many countries as a perfect democracy, while polyarchy is stingier.

Figures 4a and b for the Main sample have two peaks for the two steady states. The skewness to the left in the Arab sample gives a much lower *P&V*-level than other countries. The average values for income y_{Main} = 8.41 and y_{Arab} = 9.02 so that if the Arab countries followed the democratic transition the skewness should go the other way.

Figure 3. The frequency distribution in % of the Main and Arab samples

Figure 3a. Polity Main sample

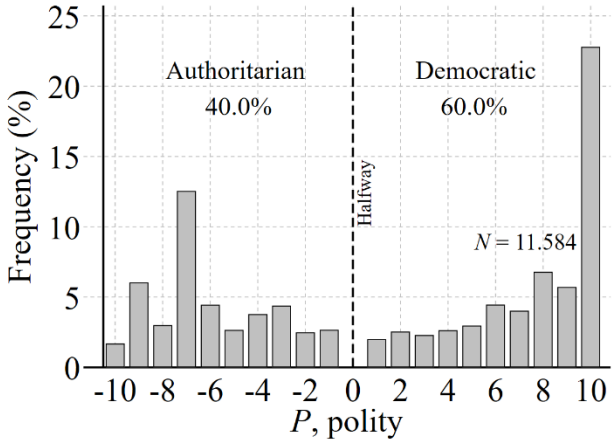


Figure 3b. Polity Arab sample

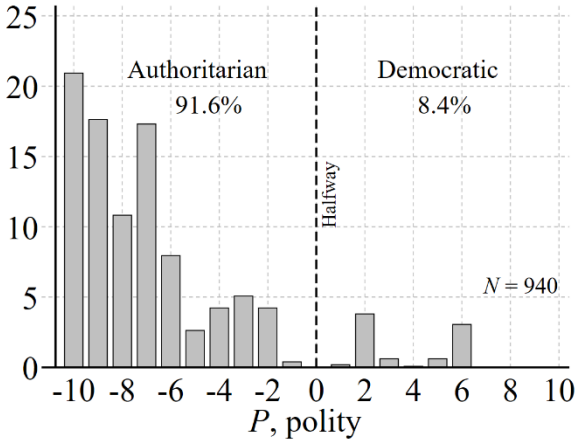


Figure 3c. Polyarchy Main sample

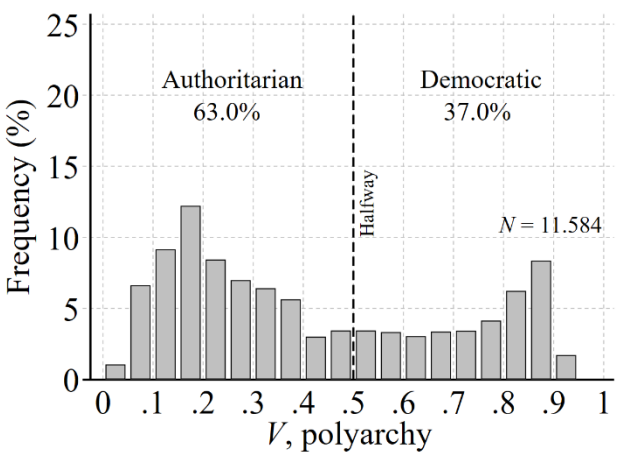
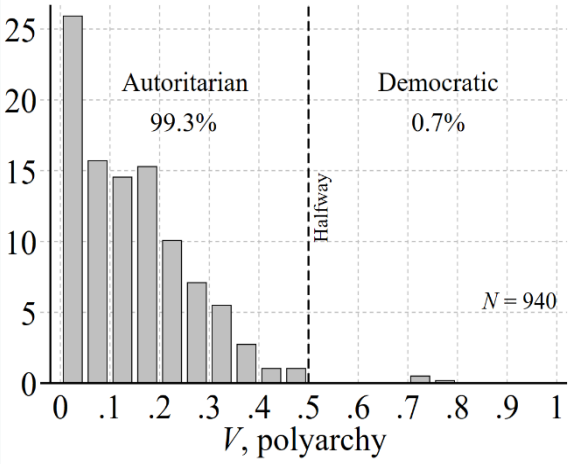


Figure 3d Polyarchy Arab sample



The bin for polity is one polity point, while it is 0.05 for polyarchy. The main sample has N = 11,584, while the Arab sample has N = 940. The polity index uses zero for an unclear system. These cases are omitted. Frequency distributions for OMA, OPEC and MENA groups are reported in NA (the Net Appendix).

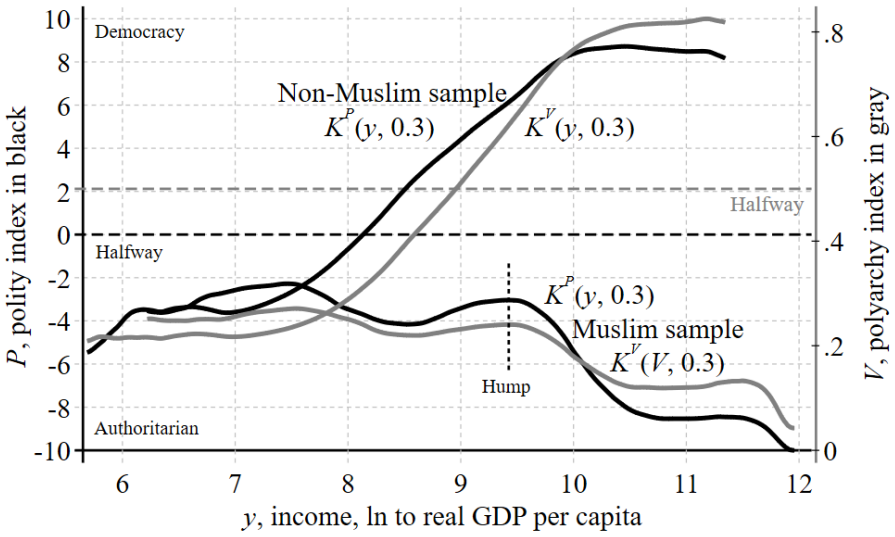
2.4 Other Muslim countries

The *Organisation of Islamic Cooperation* has 57 members. However, nine has a non-Muslim majority. Palestine has only sporadic data and a partly dependent political system. Also, the Maldives, Somalia and Brunei lack data. Thus, 44 Muslim majority countries are included in

the analysis. 20 are OMA countries.

18 countries are 13 Sub Saharan African countries from the low end of the income spectrum where the difference between the main and the Muslim group is small. Seven are post socialist countries. Chapter 3.3 in Paldam (2021) shows that political system of the seven Muslim countries has converged to the MENA pattern after 1990, while the 21 other post socialist countries are converging to the main pattern. The remaining four countries are Afghanistan, Bangladesh, Malaysia and Pakistan. Figure 4 shows the curves corresponding to Figure 1 for the 112 non-Muslim and the 44 Muslim countries. They have $N = 9{,}891$ and 2,441 observations respectively.

Figure 4. Kernel regressions explaining the *P&V* democracy indices by *y*, income
For the countries with a Muslim majority and other countries



The figure looks much as Figure 1, but the curves overlap in the beginning, where they have an extra top due to the Africa countries that had a democracy wave, when they became independent. Thus, although the story of all Muslim countries is similar to the OMA story, it is cleaner when told for the OMA countries alone as done in the rest of the paper.

3. The literature on the OMA exception

The gap shown in Figure 1 between the political system in most countries and the OMA group has been known for a long time, see e.g. Borooah and Paldam (2007) and Potrafke (2012) that covers the older literature. The gap has caused conflict, so it is no wonder that the explanation of this fact has led to a huge discussion that includes many attempts to talk down the gap: 'Islam and democracy' gives 41 million hits in Google. The discussion was fueled by two bestsellers: Huntington (1992), speaking of 'the clash of civilizations', and Lewis (2002) looking at the long period of 'stagnation' in the Muslim world starting in the 16th century.

As mentioned in the introduction this paper defines a transition as systematic long run change in a variable as a function of income. Figure 1 shows that by this definition there is no transition in the OMA group of countries. The literature uses the term 'transition' in many other ways, such as the 'transition from socialism' for the big change of the economic and political system in Eastern- and Central Europe from the late 1980s and for the next decade (or more).

Recently a large *Arab project* at the American University in Beirut – analyzed the 'democratic transitions' in the Arab world. The Arab project has led to a couple of books, of which the latest is Elbadawi and Makdisi (2017). The project constructed a modernization variable dominated by income and, as above, showed that it did not work to predict democratization in the Arab world. Then the project turned to use the term transition for a change over time. Figure 2 demonstrated that there was a 40 year period from 1975 to 2014 where the political indices did rise, but is dubious if the change is of a long run nature.

3.21 The large factors in the Arab project: Conflict proneness, oil, and spatial effects

The *Arab project* referred to above present a handful of special explanations why democracy indices are so low and increase so slowly and rejects most of the explanations. The only general explanation not discussed elsewhere in this paper is the conflict proneness, i.e., the unusual frequency of wars and civil wars in Arab countries during the last half century, after the end of the Ottoman Empire and the post Ottoman period of European domination, where some countries were French colonies and other were under (more indirect) British control.

This raises the complex question of causality. An old literature points to the relatively peaceful nature of democracy, claiming that *democracies does not fight each other*; see Gleiditch (1992) for a fine survey going back to the 1960s, stating that very few exceptions has

been found to the claim.[4] Thus, it is arguable that the missing democratic transition in the OMA-countries is the underlying reason for the wars/civil wars. The data does not allow a study of the causality in the democracy/income/war nexus, so the argument comes to rest on the identification of exogenous events. The Arab project claim that the causality is from the conflicts to the regimes. The wars were due to the exogenous chock such as the rise (and fall?) of Jihadist ideology in the MENA area, and Zionism in the world Jewish diaspora at the beginning of last century.

The Arab project stresses the largest exogenous chock was the establishment of Israel in the region, which has caused 4-5 wars. However, maybe the reason the Jewish/Arab conflict has remained for ¾ of a century is mainly endogenous, as the various regimes in the region have had strong political reasons to keep it boiling.[5] This also applies to Israel that gradually acquires more of the land Zionism dreamed about. With more peaceful governments the conflict may have slowly decreased.

The Arab project has also provided a set of case studies of the individual countries, pointing the fault lines in the social structure of the country. Some of these lines are found in several countries, but some are special. As all countries are different it is easy to point to differences. How much they matter is another question as the missing democratic transition is a general fact for the whole OMA group of countries. In the same vein Vahabi (2024) explain the Iranian exception as an effect of Shiite theology.

This paper disregards all such explanations and tries to explain why the group of the 26 OMA countries is an exception.

[4] Fukuyama (1992) is a book-length (controversial) bestseller makes the same point. It predicts 'the end of history', when everybody has turned democratic!

[5] 1948 saw a large exchange of population between the new state of Israel and the Arab world, as almost the same number of Arabs left/were pushed out of Israel, and Jews left/were pushed out of the Arab countries and came to Israel. However, while the oriental Jews were gradually absorbed in their new country, most of the Palestinian refugees came to stay in refugee camps waiting for a return to their motherland, while growing increasingly bitter. Since then, many events have happened to deepen that bitterness.

4. The two theories

The theory of the democratic transition is surveyed in section 4.1 – it is part of the grand transition, changing society from the traditional to the modern steady state. Section 4.2 shows that the theory works differently in countries receiving large resource rents from abroad. Sections 4.3 and 4.4 turn to the socio-cultural theory.

4.1 The democratic transition in the Main sample: The collapse of the three pillars model

Figure 1 showed that kernel regressions on both democracy indices give perfect transition curves in the main sample.

The two democracy indices used goes back to year 1800 where they covered 22-25 (mainly European) countries that still exist though often after some change of territory – some have merged, and a few have split. About twice as many are covered by historical narrative only. Thus, we know that during the last 500 years before 1800 nearly all countries were kingdoms, where the power of the king was based on the *three pillars:* A King, a feudal nobility/regional chiefs and a monopoly 'Church'.[6] Some of the countries had a period as colonies (notably Korea and Morocco) of a more developed country, but they do have an independent period of at least half a century at the start and the end. Today all high-income countries have turned democracies with the exception of the oil countries discussed and Singapore, which seems to be turning more democratic. The theory explaining the change in the political system is that the grand transition undermines two of the pillars.

The agricultural transition changes the share of agriculture in GDP from about 50% to about 2%. This means that the share of GDP accruing to the feudal aristocracy falls similarly. This surely reduces its power. With this reduction many countries have made land reforms, and all modern countries have abolished the privileges of the aristocracy.

Religiosity is defined as the percentage of strongly religious respondents at polls. The World Values Survey cover 14 aspects of religiosity in many countries over 5 (soon 6) waves. Thus, each poll gives a vector of 14 values for the religiosity of people . A factor analysis shows that one strong factor dominates these values. Thus, it is a measure of religiosity. It falls to about 1/3 due to the transition, and the share of the Church sector in GDP has fallen even more.

With the great weakening of the two pillar the royal pillar has been weakened too, and Kings have been abolished or turned into a national symbol. The agricultural and Church

[6] The term Church (with a capital letter) is used for the institution of the religion, even if it was not Christian.

sectors in the economy have been replaced with other sectors. And the middle class has come to dominate. It has absorbed the huge increase in human capital. The middle class wanted mass representation resulting in democracy.

This story gives an underlying transition path, but political regimes in power always try to consolidate, so countries typically see spells of constant regimes of a about a dozen years even when the transition is fastest. They represent status quo equilibria, that requires a triggering event causing a jump. The transition path acts as an attractor for these jumps.

4.2 The oil version increasing the strength of the royal pillar

Oil has certain characteristics, making it an extreme case, where the political transition becomes different.[7] In the short run oil only increases income, but gradually this causes changes in society. It may require half a century to reach the full effect. Think of human capital; even if the government of the oil country wants to expand human capital to fit to the new high-income level it will take a handful of decades. Some papers see the OPEC exception as the political part of the Dutch disease/resource curse theory,[8] see e.g., Haber and Menaldo (2011) and Aslaksen (2011). This theory adds to the explanation, but it misses a key point when the oil export starts in an LDC (less developed country).

Oil prospection and production are capital-intensive high-tech operations. Thus, a new oil sector in an LDC must rely on international technology and expatriate technicians, who rarely speak the local language. Oil installations are expensive and highly explosive, so they are heavily fenced. Once it produces, it needs few workers. Thus, the oil sector becomes an *enclave* with few direct links to the rest of society. Other cases of abundant resources may have similar effects, but oil is extreme due to the large rents generated and its enclave nature.

The large effect is indirect. Oil produces resource rent that is easy to tax, so the king's treasury becomes awash with funds. Consequently, the economic power of the king rises.[9] In the three pillars model, the royal pillar strengthens so much that the joint power of the three pillars increases. Hence, the transition comes to work in the reverse. Instead of changing society toward democracy, the political system becomes more authoritarian. Figure 5 below shows that

[7] OPEC was started in 1960, but most of the countries were oil exporters before that, and some has been oil exporters only for some of the time covered. As shown in the NA (net Appendix) it does not change the way Figure 1 looks if the data starts in 1960.

[8] The literature on *Dutch Disease* goes back Corden (1984). His analysis had Australia in mind. Here the resource sector was/is integrated in a modern economy. The term *resource curse* was the second coming of the Dutch Disease theory. In its modern version it was introduced by Sachs and Warner (1995), and the ensuing discussion is surveyed by Ploeg (2011) and Paldam (2013). While the economics of the theory is well worked out, the political part is covered by fewer papers.

[9] When oil is found in countries with democratic control of the treasury, the resource rents support democracy.

the OPEC-kernel looks precisely as that with a marked peak and a downturn as in Figure 1. The oil theory explains the peak as the point where the king becomes so rich as to control the country, and hence the country becomes more authoritarian. The average income of the non-OPEC Arab countries from 2000-2018 is about $ 8,500. The peak is 60% higher, and thus well ahead of where the countries would have been without oil.

In addition, there is the Dutch disease effect already mentioned: The big inflow of foreign exchange causes the exchange rate to appreciate, and hence the non-oil sectors lose international competitiveness. This reduces employment, but the king can afford to subsidize his supporters. Thus, they become plentiful, and in some cases much of the population comes to rely on subsidies.

4.3 The socio-cultural factors of the Muslim culture theory

Figure 4 reported the distribution of the observations of the Arab and the Main sample. The Arab sample is much more authoritarian – also in the countries without oil. Islam is deeply embedded in the culture of the MENA countries.[10] This suggests that Muslim culture may be a second barrier to democracy. The suggestion refers to two observations about the culture and history of the Arab/Muslim world.

(1) Many Muslims see the regime in Mecca at the time of the prophet Muhammed (ca 570-632) as an ideal. It was an oligarchy dominated by the largest trading families, though it is difficult to use modern terminology for such distant times. In addition to being considered the chosen spokesman of Allah, Muhammed was a big worldly success. He became successful in business, as a general, and as the leader of his town. He started the military expansion that led to the big Arab-Muslim empire within a century of his death.[11] Consequently, he is greatly admired. He was not a democratic ruler, and after his death his close associates started the tradition of khalifs in Islam.

(2) The sacred Quran does not recommend democracy,[12] at least not as we interpret the term today, though, once again, it is difficult to interpret words spoken so far ago. Today many radical Muslims reject democracy as part of the 'decadence' of the West.

Islam came from the Arab peninsular, and the prophet preached in Arabic as spoken by

[10] The countries of the MENA/Arab group are all Muslim though pockets of other religions survive in most of the countries, notably in Lebanon. These pockets are dwindling.

[11] This contrasts to Jesus, who was a poor itinerant preacher, who never had worldly success. He was even executed, and for the first 350 years Christianity was a religion of the poor and downtrodden.

[12] Muslims see the Quran as the words of Allah spoken by his prophet and immediately written down. Most Christians agree that the new testaments of the Bible are four narratives of the life and words of Jesus written half a century (or more) after his death. Thus, the text of the Quran is more sacred and less amenable to interpretations.

the elite at that time. With some effort it is accessible to the modern Arab, and Muslims are urged to read it in the original. The other important source to tradition is the Hadith, which is a collection of stories describing the life of the prophet and his close associates. Together these sources make the Arab people and their language central to Islam. The data analyzed below demonstrate that the Arab group has a lower *P&V*-level than MENA in general.

The Muslim culture theory does not explain the hump-shape, but only a general low level of democracy. The peak on the OMA curve is only explained by the oil theory.

4.4 The emotional question

While the facts about the OMA exception are clear the Muslim culture theory poses the emotional question: Is Islam the explanation? As sketched above, the Muslim culture theory is not a theory with simple economic mechanisms. It hinges on traditions and cultural factors that may or may not have a basis in the Muslim theology, and thus, in the last resort, in the Quran. The gulf separating the political systems of the West, and the Muslim world is a problem giving political tensions/conflicts, even terrorism, and military interventions. Thus, there is a wish to talk the gulf down. Hence, the question asked may be reformulated. Instead of asking why Muslim countries are so authoritarian, it asks if Islam and democracy are incompatible. To prove that Islam and democracy are compatible only needs a few examples of democracy in a Muslim country, and a such cases does exist, but they are exceptions.

There is also micro evidence from polls where Muslims answers as nicely as other people to items about their preference for democracy; see e.g., the early survey by Inglehart (2002) and Hofmann (2004). Here the argument soon reaches the chicken and egg circularity. Maybe certain cultural traditions – such as the strong control/protection of women – cause Arab countries to be so authoritarian. Then it becomes necessary to explain where these cultural traditions came from. I believe that most Muslims will say that they came from Islam, i.e., from the Quran and tradition, as described in the Hadith. However, Islam appeared in an area that already had a strong culture that affected traditional Islam.

In addition, one may point to the story of the Arab Spring 2010-12 – why did it come? and why did it fail? see Inglehart (2017), Eldabawi and Makdisi (2017) and Ferrero (2018).

4.5 Two theories, three sub-groups, and three predictions

As stated in the introduction the theories lead to three predictions about the sub-groups:

(Sg1) The ***OPEC-only*** group of eight countries have oil but are outside the MENA area – most are not Muslim. They are so far from the MENA/Arab countries that spatial effects are

unlikely. Hence only the oil barrier should work. They should have a hump and a *P&V*-level between the Main and the OMA-level.

(Sg2) The ***MENA-only*** group of eight countries are Muslim but have no oil. Here only the Muslim culture barrier should work. All are close to oil countries, and only one is non-Arab (Turkey). Thus, spatial effects are likely. Hence, they should have no peak and a *P&V*-level between the Main and the OMA-level. If the two theories are of equal strength it should be below the OPEC-only curve.

(Sg3) The ***Overlap*** group of ten countries that are both MENA and OPEC and contain only one non-Arab member (Iran). Thus, it should show the effect of both theories working together, so the Overlap curve should have a *P&V*-level below the OMA-level.

The three predictions are analyzed by two techniques: Section 5 uses OLS- regressions with binary dummies for the groups and sub-groups. They show average effect-sizes for the two barriers. Section 6 report kernel regressions for the groups and sub-groups. They show that the paths for the groups and sub-groups have a pattern precisely as predicted.

The sub-groups consist of only 8, 8, and 10 countries, so results may not be robust. Complex stories can be told about each country. Saudi Arabia treasures traditional/orthodox Islam and is the guardian of its most holy places, while Turkey has a Kemalist tradition for secularization.[13] Other MENA countries, such as Algeria, Libya, Egypt, Syria, and Iraq have had periods of Arab socialism. There have also been waves of radical Islam. The NA (net-Appendix analyzes the robustness of the aggregation in the six cases of three sub-groups and two indices. For each case, a ***bundle*** of kernels is estimated, by deleting every country and recalculating the kernel. The six bundles have some variation, but the average pattern is robust.

[13] Mustafa Kemal Atatürk ruled Turkey 1923-38. His policies aimed at development through modernization. One method was to secularize society, the Arab alphabet and traditional dresses were abolished, etc.

5. The results from linear tools

The democracy indices are defined on limited intervals, so the standard linear tools are not perfect for the purpose, but they are rather robust, and often used in democratization studies. Section 6 uses the nonlinear tool of kernel regressions. It is reassuring that the results tally, even when Section 6 gives additional information.

5.1 The correlation between income and the two democracy indices

Table 4 reports correlations between *P&V* and *y* for the groups and sub-groups. Figure 4 showed that the distributions of the P&V data are far from normal, the Pearson correlation, r, is supplemented with, ρ, Spearman's rank correlation. The polyarchy correlations are larger than the polity correlations indicating that polyarchy has a stronger upward trend than polity. This was already visible in Figure 1.

Rows (i) and (ii) tell the same story as Figure 1. The (*P&V*, *y*)-relation differs strongly in the Main and the OMA samples. Rows (1) to (6) show the pattern: Both rows (2) for the OPEC-only and (3) for the MENA-only groups have positive correlations, but they are smaller than in the Main group confirming predictions (Sg1) and (Sg2). The lowest correlations are in row (6) for the Arab group, but also row (3) for Overlap is low confirming prediction (Sg3).

Table 5 is a factor analysis of the groups. It adds one important point: only one factor matters. It is due to the high correlations of the two democracy indices. While income belongs to this factor in the Main sample, it does not belong in any of the three OMA samples.

Table 4. The number of observations and correlations to *y* in groups and sub-groups

	Group or Sub-group	Number of Countries	*N*	Polity r(*P*, *y*)	Polity ρ(*P*, *y*)	Polyarchy r(*V*, *y*)	Polyarchy ρ(*V*, *y*)
(i)	Main	130	10,583	0.581	0.609	0.705	0.647
(ii)	OMA	26	1,749	-0.048	-0.126	0.103	0.088
(G1)	OPEC	18	1,224	-0.128	-0.253	0.039	-0.020
(G2)	MENA	18	1,107	-0.123	-0.196	0.002	-0.023
(G3)	Arab	16	940	-0.142	-0.229	-0.016	-0.054
(Sg1)	OPEC-only	8	642	0.386	0.321	0.535	0.492
(Sg2)	MENA-only	8	525	0.339	0.307	0.527	0.501
(Sg3)	Overlap	10	582	-0.128	-0.156	0.079	0.023

The two coefficients of correlation are the standard (Person's) **r**, and Spearman's rank correlation **ρ**. The two correlations are close in samples of normally distributed data, but they differ as democracy indices are non-normal.

Table 5. Comparing a factor analysis for the OPEC and the MENA samples

	Main, N = 10,583		OPEC, N = 1,224		MENA, N = 1,107		Arab, N = 940	
	Factor1	Factor2	Factor1	Factor2	Factor1	Factor2	Factor1	Factor2
Eigenvalue	2.13	0.03	1.67	0.17	1.51	0.08	1.40	0.07
Variable	Factor loading		Factor loadings		Factor loadings		Factor loadings	
P, polity	0.87	-0.10	0.92	-0.11	0.87	-0.07	0.84	-0.05
V, polyarchy	0.93	-0.10	0.91	0.13	0.86	0.09	0.83	0.08
y, income	0.71	0.12	-0.05	0.37	-0.07	0.26	-0.10	0.24

5.2 OLS regressions with binary group dummies

Table 6 uses all data and reaches high t-ratios. Parts A and C are for the polity index, and Parts B and D are for the polyarchy index. The scale of the two democracy indices differs as mentioned, but the t-ratios and the aR^2's are similar.

Table 6a analyzes the effects of the groups. The pure effect of the OMA dummy is shown in regressions (2) and (7). As expected, it is large and negative. Once it is included the effect of income rises. Regressions (3) - (5) and (9) to (11) analyze if the three parts of the nexus contribution to the explanation of the OMA-variable. All three do, as seen from the aR^2 scores. They increase the effect of income, while the effect of the OMA variable is reduced. The change from regression (2) to (3) and from (8) to (9) only increases the fit marginally. But both MENA and especially Arab gives a larger contribution.

Table 6a. Analyzing the three groups, N = 12,332 observations

	Part A. Polity: $P = Constant + \beta Income + \lambda OMA + \gamma Group + u$						Explained	
				(G1)	(G2)	(G3)		
	Constant	*Income*	*OMA*	*OPEC*	*MENA*	*Arab*	aR^2	ΔaR^2
(1)	-25.6 (-55)	3.13 (58)					0.211	Basis
(2)	-26.5 (-62)	3.35 (66)	-6.99 (-45)				0.322	0.110
(3)	-26.7 (-62)	3.38 (67)	-5.23 (-20)	-2.52 (-8)			0.325	0.114
(4)	-27.4 (-64)	3.46 (69)	-3.27 (-14)		-5.92 (-20)		0.343	0.132
(5)	-27.7 (-66)	3.49 (70)	-3.27 (-15)			-7.00 (-25)	0.354	0.142
(6)	-28.8 (-69)	3.62 (73)	3.99 (9)	-7.25 (-21)	-4.33 (-8)	-6.05 (-12)	0.375	0.164
	Part B. Polyarchy: $V = Constant + \beta Income + \lambda OMA + \gamma Group + u$						Explained	
(7)	-0.87 (-56)	0.150 (81)					0.349	Basis
(8)	-0.91 (-63)	0.158 (94)	-0.263 (-51)				0.460	0.112
(9)	-0.92 (-64)	0.159 (95)	-0.198 (-22)	-0.093 (-9)			0.464	0.115
(10)	-0.94 (-67)	0.162 (95)	-0.128 (-16)		-0.215 (-22)		0.481	0.132
(11)	-0.95 (-67)	0.163 (98)	-0.139 (-19)			-0.236 (-25)	0.487	0.138
(12)	-0.99 (-71)	0.168 (103)	0.142 (10)	-0.269 (-23)	-0.209 (-12)	-0.162 (-10)	0.508	0.160

Table 6b. Analyzing the three sub-groups, all N = 12,332 observations

	Part C. Polity: $P = Constant + \beta Income + \lambda OMA + \gamma Sub\text{-}group + u$						Explained	
				(Sg1)	(Sg2)	(Sg3)		
	Constant	*Income*	*OMA*	*OPEC-only*	*MENA-only*	*Overlap*	aR^2	ΔaR^2
(13)	-25.3 (-55)	3.11 (57)		-2.46 (-9)			0.217	Basis
(14)	-27.4 (-64)	3.46 (69)	-9.20 (-49)	5.92 (20)			0.343	0.126
(15)	-25.4 (-55)	3.13 (58)			-4.42 (-15)		0.226	Basis
(16)	-26.7 (-62)	3.38 (67)	-7.75 (-43)		2.52 (8)		0.325	0.099
(17)	-29.1 (-68)	3.61 (71)				-12.50 (-49)	0.338	Basis
(18)	-28.6 (-68)	3.60 (72)	-4.15 (-23)			-8.75 (-29)	0.366	0.028
	Part D. Polyarchy: $V = Constant + \beta Income + \lambda OMA + \gamma Sub\text{-}group + u$						Explained	
(19)	-0.86 (-55)	0.149 (81)		-0.097 (-11)			0.355	Basis
(20)	-0.94 (-67)	0.162 (98)	-0.343 (-55)	0.215 (22)			0.481	0.126
(21)	-0.87 (-56)	0.150 (82)			-0.168 (-17)		0.364	Basis
(22)	-0.92 (-64)	0.159 (95)	-0.159 (-27)		0.093 (9)		0.464	0.100
(23)	-1.00 (-70)	0.168 (99)				-0.463 (-54)	0.473	Basis
(24)	-0.98 (-71)	0.167 (102)	-0.159 (-27)			-0.319 (-32)	0.503	0.029

Tables 5a use four binary dummies *OMA*, *OPEC*, *MENA*, and *Arab*. They are one if the country is in the group, and zero otherwise. Table 6b uses the same technique for the sub-groups. The numbers in parenthesis are t-ratios – above 5 they are rounded to the nearest integer. The aR^2 is the adjusted R^2. The ΔaR^2 says how much the aR^2 increases compared to the basis that is to the left. The number of observations for the groups and sub-groups are reported in Table 2.

Rows (6) and (12), include all three parts of the nexus. Here the coefficient on OMA even becomes positive, due to multicollinearity. OPEC gets the strongest coefficient, and the sum of the change in the coefficient to OMA equals the coefficient to OPEC, so OMA and OPEC have almost the same effect, but still MENA and especially Arab add something to reduce the effect of OMA.

Table 6b analyzes the effects of the sub-groups. The pattern for the (Sg1) OPEC-only and (Sg2) MENA-only is similar. When the OMA variable is not included the effect is negative, but when OMA is included the effect changes to be positive. This means that the *P&V*-levels in the two groups are between the Main group and the OMA-group. The MENA-only effect is stronger than the OPEC-only effect, indicating that the Muslim culture barrier is stronger than the oil barrier, but the difference may not be significant given that spatial effect from the Overlap group is likely for the MENA-only countries, but not for the OPEC-only countries.

The (Sg3) Overlap is very negative without the OMA-variable and remains negative when the OMA-variable is included. Consequently, both oil and Muslim culture give more authoritarian regimes. When they are combined in Overlap the effect doubles as predicted.

6. Studying the functional form with kernel regressions

Figure 1 showed that the path of the two OMA curves has a peak. Before the peak, the slope is positive and after it is negative. The linear tools in section 5 gave averages over the observations for the whole scale. Consider the same hump-shaped curve. If most observations are in the positive part before the hump, it will dominate the linear estimate, but if most observations are negative the part after the hump will dominate. Table 7 reports the fraction of observations after the peak. The table also gives the number of observations supporting all kernel estimates below. They are estimated with bandwidth $bw = 0.4$.

Table 7. The fraction of observations after the peak for y = 9.4 in the five groups

	Group or Sub-group	Number of Countries	*N*	Both indices After peak	In %
(G1)	OPEC	18	1,224	332	27.1
(G2)	MENA	18	1,107	276	24.9
(G3)	Arab	16	940	240	26.4
(Sg1)	OPEC-only	8	642	77	12.0
(Sg2)	MENA-only	8	525	21	4.0
(Sg3)	Overlap	10	582	255	43.8

6.1 The kernels for the three groups: OPEC, MENA, and Arab

Figure 5 shows kernel-curves for the three groups. (G1) OPEC, (G2) MENA, and (G3) Arab. The curves are all below the middle of the regime scales, i.e., they are in the autocracy range.

Figure 5. The kernels for the three groups and the two indices

Figure 5a. Polity $K^P(y, 0.4)$

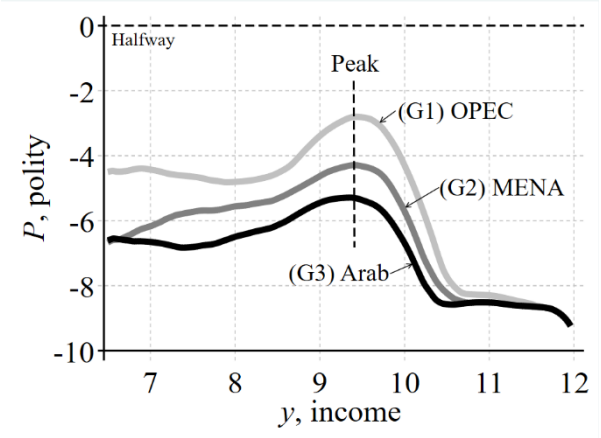
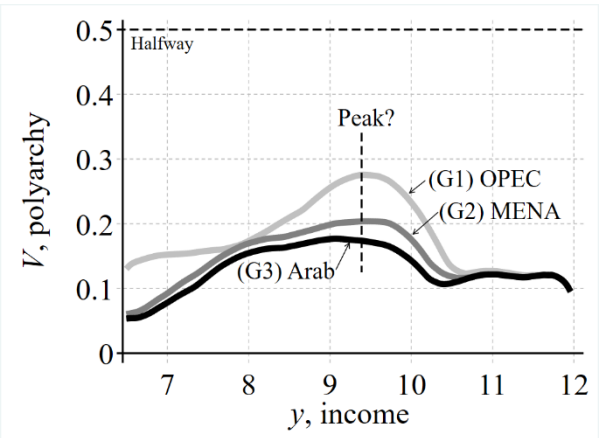


Figure 5b. Polyarchy $K^V(y, 0.4)$



For both Figures 3 and 4: All *N*'s are as reported in Table 7 and all bandwidths are 0.4.

The three curves have the same form for polity but for polyarchy the MENA and Arab curves have a flatter form with a less clear peak. The *P&V*-levels differ so that it is highest for the OPEC curve. The middle curve is the MENA curve, while the Arab curve is the lowest, despite the great overlap to the MENA curve.

The two *P&V*(*y*)-curves for OPEC look like the OMA curves in Figure 1. The curves are non-linear, showing a clear peak in the middle, but on average the slopes are negative, as also found in Tables 6 and 7. The negative slope of the linear approximation is dubious for the polyarchy index. The peak on the curves is at $y = 9.4$ that is about $ 12,000.

6.2 Kernels for the three sub-groups: OPEC-only, Overlap, and MENA-only

Figure 6 shows the kernels for the three sub-groups from Table 2 and 6. The two dashed gray curves are the Main and the OMA curves from Figure 1 – added for easy comparison. Section A2 of the NA (net-Appendix shows the robustness of the curves.

The three solid curves are for the sub-groups and hence they are new. When interpreting these curves, the reader should recall the three predictions in section 4.5 and consider the robustness analysis in the NA

(Sg1) The ***OPEC-only*** curves are for eight countries outside the MENA area. It represents the pure oil-effect. It is between the main and the OMA curves. It is the highest of the three sub-group curves, and for the polity index it even extends into the democratic region of the graph. Thus, the countries may have been on the transition path, but then the oil effect sets in, and creates a strong hump shape. As mentioned, the short-run effect of oil is only that income increases so that the curves shift to the right, while society remains the same. Thus, the OPEC-only curve may be on the Main curve at the start. However, then the oil mechanism causes the curve to turn down. The two graphs have a positive slope for most of their path as expected from Table 4.

The other two curves for the sub-groups contain the effect of Islam – they are all lower, so a clear effect appears as expected.

(Sg2) The ***MENA-only*** curves for eight MENA countries without oil, so they should have no peak, and they do not. They have a positive slope throughout as expected from Table 4. The curves are also between the Main and the OMA curves. Table 7 shows that they have only 4% observations above the peak at 9.5, so even if they had a peak, it would be hard to see. Thus, the main point to note by comparing with Figure 1 is that the rising path is well below the one in the Main sample. The MENA-only may be seen as the transition in non-oil Muslim/Arab countries. At the income $y = 9$ it is 7 polity points and 0.23 polyarchy points

below the Main curve. It certainly speaks of a large effect. However, it is dragged down by spatial effects within the Arab area.

(Sg3) The ***Overlap*** curve is for countries that are both OPEC and Muslim, so both theories work. As expected, it is the lowest curve, well below the OMA curve. The richest oil countries are in Overlap, so the data for OMA and Overlap melt together at high incomes.

The three predictions made in the introduction and in section 5.5 are thus confirmed.

Figure 6. The kernels for the three sub-groups and two indices.

Figure 6a. Polity
$K^P(y, 0.4)$

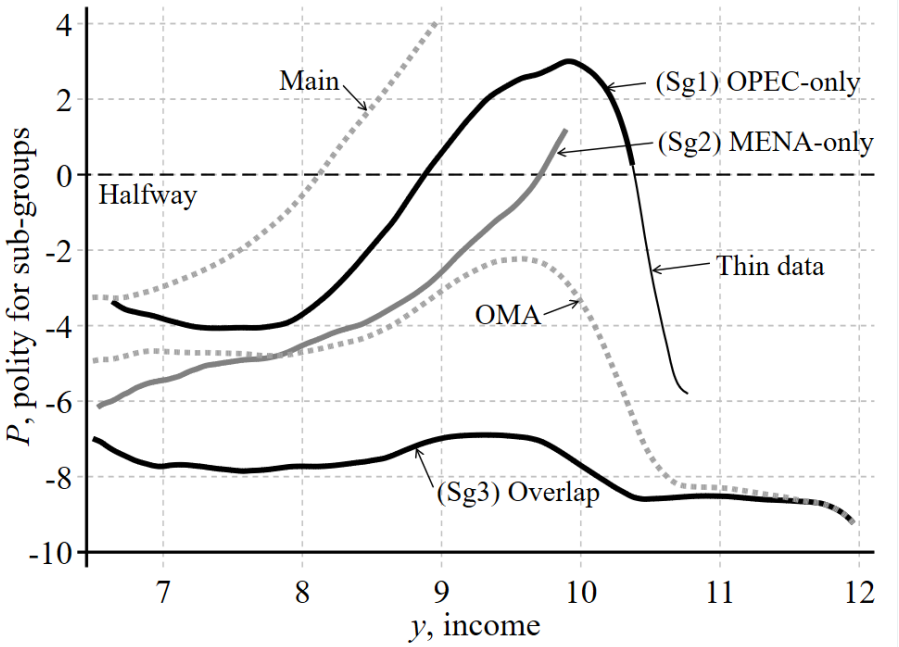
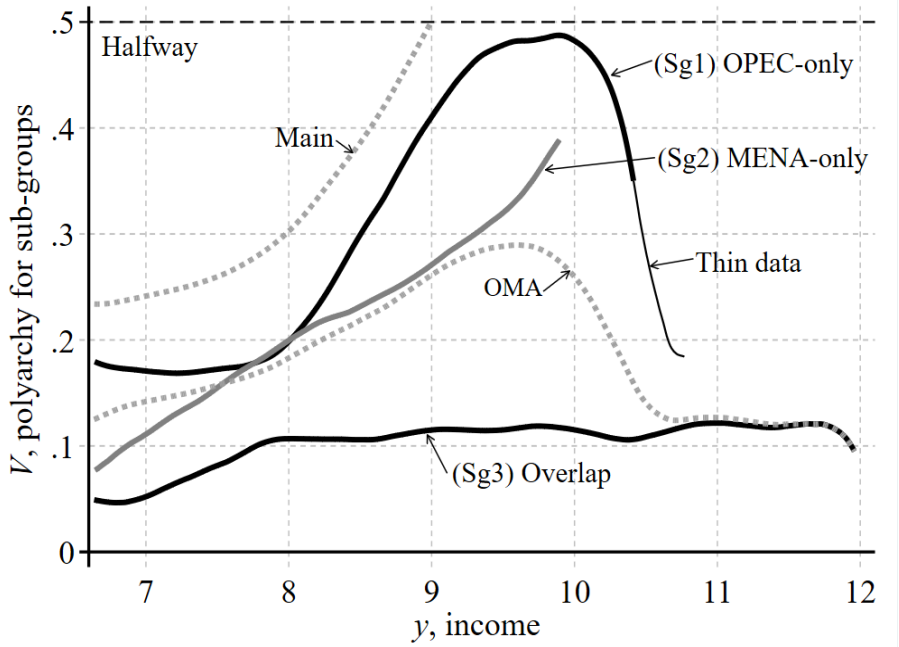


Figure 6b. Polyarchy.
$K^V(y, 0.4)$



7. Conclusion

This paper deals with the OMA (OPEC/MENA/Arab) exception to the democratic transition and try to sort out the parts of the nexus. The overlap of the groups and spatial effects within the Arab group makes it difficult. But still some results emerge from the efforts.

Two theories have been discussed. The oil theory for OPEC group, and the Muslim culture theory for the MENA/Arab group. Both theories are confirmed. Thus, a Muslim oil country should have a particularly low level of democracy, and indeed, the ten countries in the Overlap group, is the most authoritarian group. Also, the group of OPEC-only countries that are outside the MENA area is the least authoritarian group. However, the hump-shape found on the kernel curve for both the OPEC and the MENA-group suggests that oil is a strong factor.

Two remarks should be added: (1) The empirical analysis of the Main-sample (elsewhere) uses large data sets and reaches strong conclusions. This paper uses much fewer observations, with strong spatial effects, so the conclusions are less strong. (2) The OMA exception does deviate much from the Main group of all other countries. One may argue that exceptions are of a temporary nature only, and that the (failed) Arab Spring was a first attempt to move the most extreme country group closer to the mainstream. Other countries have experienced several such waves before they succeeded, so one may hope. However, the Arab world has also seen waves of violent reaction, so at present there is no clear trend toward system changes.

Author statements

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All data used is in the public domain and also available on demand.

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