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Measuring democracy, 1960-2016

How different are the Polity and the V-Dem indices?

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Abstract:

The *Polity* index, and five democracy indices from the V-Dem project are compared empirically. The data are the overlapping sample of 7,651 observations from 1960 to 2016 divided into the Main and the OPEC sample. In the Main sample the seven variables contain one and only one strong positive factor, which is the Democratic Transition. In the OPEC sample the income dependency is weaker and negative. The main V-Dem index is *Vpol* (Polyarchy). To permit a detailed comparison of the indices *Vpol* is converted to the Polity-scale, giving the *PVpol* index. The average numerical difference between *Polity* and *PVpol* is three Polity points that indicate the measurement uncertainty in our knowledge about democracy in the countries of the world. The indices for individual countries often differ more than three points, and sometimes even the trends differ.

Keywords: Democracy indices, aggregation problem, democratic transition

Jel.: A12, K10, P51

Paper #3 in my project Measuring Democracy [2]

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[2] This paper is #3 in the project Measuring Democracy; see references. Paper #1 is the main paper. Paper #2 covers the period 1972-2016 where the two Freedom House indices are available. The project is a follow up of a book Paldam (2021). Section 1 in the appendix (#4) contains a brief summary of the relevant parts of the book.

1. Introduction

It is often discussed if a country is democratic, or is it moving toward democracy. To study such issues requires a measure of the degree of democracy. The demand for such measure has generated a dozen democracy indices. The political importance of the issues has also led to a large body of research using these indices to study the factors making countries more or less democratic, and the consequences of democracy. Much of this literature think of democracy as a one-dimensional variable, but maybe it is not.

Most countries have mixed political systems, with both democratic and authoritarian traits. Different indices weight these traits differently. It is often different what a regime claims, and what objective observers think. However, objectivity is a difficult ideal, and the assessments of seemingly impartial observers differ.

Democracy indices are highly correlated,[3] but they still differ for two main reasons: (i) Because they are conceptually different, so that they measure something different. (ii) Because the assessments of the underlying indicators differ. Within projects (ii) are the same, so only (i) matters. Empirically within-projects indices are more alike than they are between projects. Thus, conceptual differences are less important, and this paper concentrate on the empirics; [4] see Paper #1 for the full argument.

The *Polity* index reduces the political system to one dimension. The V-Dem family of five democracy indices are made to provide more information, but as mentioned it is debatable how different the information is. The family is centered on the Polyarchy index, and most of the paper concentrate on two indices ***Polity*** and ***Vpol*** (Polyarchy). They have a different ***statistical structure***: *Polity* is constant most years, but occasionally it jumps, while *Vpol* changes every year. In addition, *Polity* is generous scoring countries as full democracies, while *Vpol* is stingy with the high-end scores. The indices are compared in two ways:

(1) The ***grand pattern*** considers how the average index moves over time and as a function of income, which is the Democratic Transition that is the strongest common factor in a factor analysis of these data; see section 2. When many observations are averaged, measurement errors and uncertainty vanish revealing the deep differences. They turn out to be small.

(2) The ***detailed*** comparison considers how two main indices differ in individual

[3] The strong correlation of the indices is not due to the endpoints only; see Paper #2.
[4] The groups behind the main indices have published detailed codebooks; see Marshall *et al.* (2018) and Coppedge *et al.* (2020). Munck and Verkuilen (2002) opened the discussion on the theory, and it led to many contributions, see Boese (2019) for a survey of the ensuing discussion.

countries. It requires that the indices use the same scale. Thus, *Vpol* is converted to *PVpol* using the Polity scale, which is preferred to link up to prior work. The conversion is a linear approximation to a non-linear relation. The average numerical difference is between ***two and a half and three Polity points***, which is 12-15% of the full range of the indices. It is a key number in the paper. The paper claims that little of the three points is due to errors and the conversion – most is due to inevitable ***measurement uncertainty***. There are limits to what we can know.

Democracy indices and many other macro socio-economic series are aggregates of a set of indicators. A perfect aggregation is only possible by a fluke, so the aggregate indices are surrounded by a gray zone, where all values are equally good. The gray zone is normally disregarded by theory, and it is only known in a few cases, anyhow. The measurement uncertainty is large for democracy indices. They aggregate rather different indicators, so that the aggregation problem is large. In addition, most of the indicators involve assessments, where even the most thorough observers differ.[5]

The seven series have ***overlapping data*** between 1960 and 2016 for $N = 7{,}651$ observations from 155 countries.[6] The data are from three projects: Maddison, Polity and V-Dem. Each source has more observations, but the analysis requires observations for all series and non-zero values for *Polity*. Prior research suggests that the data should be divided into the ***Main sample*** with $N = 6{,}852$ for 139 countries, and the ***OPEC sample*** with $N = 799$ for 16 countries.

Section 2 provides some descriptive statistics, while section 3 looks at the grand pattern in the two indices. Section 4 gives the conversion of *Vpol* to *PVpol*, and studies the difference to *Polity*. Section 5 considers country groups and the high-end difference. Section 6 looks at nine countries where the indices differ the most, and section 7 concludes.

Paper#2 is a parallel paper that includes the Two Freedom House indices CL, Civil Liberties and PR, Political Rights for the period 1972-2016. Most results are similar. An appendix (Paper #4) contains a summary of the relevant chapters in Paldam (2021) and reports statistics for 155 countries. It also shows that in spite of the different statistical structure the autocorrelations in *Polity* and *Vpol* are much the same, with AR(1) ≈ 0.9.

[5] Think of the unique two-tier system of Iran, where the lower level is democratic within (narrow) limits, set at the higher level, which is theocratic. Theocracy is surely not democracy, but it is a difficult judgement how the system should be rated in a democracy index. Assessments differ, and none can claim to be the one and only. The numerical average between the two indices (1960 – 2016) for Iran is 3.6 Polity points.

[6] East Timor and South Sudan are also covered, but with so few data that they are excluded from the analysis. To get as many countries with observations for all years as possible, I have joined countries and their successors in seven cases, such as West Germany and Germany, Russia and the USSR, etc. See note to Table A1 in Appendix.

2. Some descriptive statistics

The data used are listed in Table 1. They are panels with a time and a country dimension. The statistics reported are calculated for the ***unified*** data, as averages ***within***-country and ***between***-countries. Section 2.1 looks at correlations, section 2.2 reports a factor analysis, section 2.3 compares the correlation matrices and factor analyses in Papers #1, #2 and #3.

Table 1. Eight democracy indices and income

Project	Index	Scale
Polity	(1) *Polity* (the Polity2 series)	Closed set of [-10, 10] integers. -10 is fully authoritarian, 10 is fully democratic, zero is no system. 18% of the data are +10
V-Dem	(2) *Vpol* Polyarchy, and *PVpol* (3) *Vlib* liberal democracy (4) *Vpar* participatory democracy (5) *Vdel* deliberate democracy (6) *Vega* egalitarian democracy	Open interval]0, 1[, 2 to 3 decimals. 0 is perfect authoritarian, 1 is perfect democracy. These ideals are not reached. The highest is 0.924 until now. PVpol is Vpol in the polity scale. The *Vpol* index is considered the main index from this project
Maddison	(7) *Income* y = ln *gdp*	*gdp* is GDP per capita. The *cgdppc* series from the project

The references give the home pages where the data are posted.

2.1 The correlations with a division into the within- and between-countries

Table 2 reports the correlation matrices for the Main and the OPEC samples.[7] Each of the two panels in the table contains 21 meaningful correlations of which six are between income and the six democracy indices, while the remaining 15 are inter-correlations of democracy indices.

Table 2a. Correlation matrices for the Main sample, 1960-2016

	Unified annual data, N = 6,852						Country averages, N = 137					
	(1a) *Polity*	(2a) *Vpol*	(3a) *Vlib*	(4a) *Vpar*	(5a) *Vdel*	(6a) *Vega*	(1a) *Polity*	(2a) *Vpol*	(3a) *Vlib*	(4a) *Vpar*	(5a) *Vdel*	(6a) *Vega*
(1) *Polity*	1						1					
(2) *Vpol*	0.90	1					0.93	1				
(3) *Vlib*	0.86	0.98	1				0.89	0.98	1			
(4) *Vpar*	0.87	0.97	0.97	1			0.90	0.98	0.98	1		
(5) *Vdel*	0.87	0.98	0.98	0.97	1		0.90	0.98	0.99	0.97	1	
(6) *Vega*	0.81	0.95	0.97	0.95	0.96	1	0.85	0.96	0.98	0.95	0.97	1
(7) *Income*	0.56	0.66	0.70	0.69	0.68	0.73	0.62	0.71	0.73	0.72	0.71	0.76

The gray area is the inter-correlation of the V-Dem indices. The abbreviation 'inco' is *income.*

[7] The correlations for the full sample is not reported as it is dominated by Main sample. The historical V-Dem dataset has N = 18,351 for the five series. Their correlations are virtually the same as in the main sample. The correlations of Table 2 have been re-calculated using Kendall's rank correlation coefficient. It does not change the conclusions, so they do not hinge on outliers.

Table 2a. Correlation matrices for the OPEC sample, 1960-2016

	Unified annual data, $N = 799$						Country averages, N =16					
	(1b) Polity	(2b) Vpol	(3b) Vlib	(4b) Vpar	(5b) Vdel	(6b) Vega	(1b) *Polity*	(2b) *Vpol*	(3b) *Vlib*	(4b) *Vpar*	(5b) *Vdel*	(6b) *Vega*
(1) *Polity*	1						1					
(2) *Vpol*	0.90	1					0.95	1				
(3) *Vlib*	0.83	0.94	1				0.85	0.94	1			
(4) *Vpar*	0.89	0.97	0.93	1			0.95	0.98	0.94	1		
(5) *Vdel*	0.82	0.93	0.95	0.92	1		0.81	0.93	0.96	0.90	1	
(6) *Vega*	0.79	0.92	0.93	0.91	0.95	1	0.80	0.90	0.94	0.88	0.95	1
(7) *Income*	-0.30	-0.23	-0.06	-0.19	-0.07	0.02	-0.54	-0.43	-0.17	-0.37	-0.19	-0.09

The five V-Dem indices are made to be different, but the 10 inter-correlations are the 10 largest correlations in both parts of the table. That 10 draws of 15 possible are the largest has the probability: (10/15) x (9/14) x (8/13) x…x (1/6) = 3.3 x 10^{-4} and it should be squared as it happens in both tables, thus it is 1.1 x $10^{-7} \approx 0$. Thus, the indices of the V-Dem family are all more alike than either is to the Polity index.[8]

Recall that indices differ for two main reasons: (i) Because they are conceptually different, (ii) because the assessments of the underlying indicators differ. However, within-projects only (i) matters as (ii) are the same. As (ii) is stronger than (i), conceptual differences between indices is a relatively small issue. This leads to the point that it is more convincing if a result, which is reached by the use of a democracy index, is confirmed by an index from another project than by an alternative index from the same project.

Columns (1) in Table 2 gives the correlation of *Income* and the six democracy indices. It tells three stories: (i) Column (1a) for the Main sample shows that *Income* is correlated to all democracy indices with large positive correlations.

Table 3. Correlations between- and within-countries for the Main sample

Correlation Of	Unified Table 2	Between countries	Within countries	Country counts Negative	None
Income and Polity	0.56	0.62	0.23	38	20
Income and Vpol	0.66	0.71	0.35	37	0
Polity and Vpol	0.90	0.93	0.69	6	20

The Main sample holds 139 countries. The two rightmost columns are counts of the country correlations. 'None' is for countries where Polity is constant, where no correlation exists. The Appendix reports the within-country averages and correlations used for the within column.

[8] A t-test of the 4 between-project correlations vs the 10 inter-project correlations also reject that they are the same both for the Main sample, where the probability is 1.7 x 10^{-7} and for the OPEC sample, where the probability is 6.1 x 10^{-5}. The product is 1.0 x $10^{-11} \approx 0$.

Table 3 shows that the correlation is twice as strong between countries, as it is within countries. This indicates that the correlation is stronger in the long than in the short run. Section 3.2 shows that the long-run effect is the Democratic Transition. (ii) The correlations between *Income* and the political indices are a bit higher for the V-Dem indices than for *Polity*. (iii) Column (1b) for the OPEC sample shows that the correlations of *Income* to the political indices are numerically smaller and negative.

2.2 The factor analysis

Table 4 gives four factor analyses of the seven variables. The first point to note is that the eigenvalues of Factor1 are large in all samples. The rule of thumb used in factor analyses is that a factor should have an eigenvalue above one to be interesting. Thus, Factor2 and higher are of no consequence. Both the Main and the OPEC samples contain one and only one common factor, but as the loading to *income* and Table 2 show, it is not the same factor.

If income is left out the factor analysis for the remaining 6 variables stays virtually the same, so the common factor includes income. For the Main sample, the common factor is the *Democratic Transition*. It is drawn in section 3 and discussed in great detail in chapters 4 to 7 of Paldam (2021). Obviously, it is differently in the OPEC countries.

It is amazing that the factor loadings to the five V-Dem indices are so high and uniform. Once again, this suggests all five indices tell the same story.

Table 4. Four factor analyses

	Main sample				OPEC sample			
	Annual data		Country averages		Annual data		Country averages	
	N = 6,852		N = 139		N = 799		N = 16	
Factor	Eigenv	Cumul	Eigenv	Cumul	Eigenv	Cumul	Eigenv	Cumul
Factor1	6.11	0.98	6.23	0.98	5.48	0.91	5.64	0.85
Factor2	0.16	1.01	0.14	1.00	0.59	1.01	0.94	1.00
	Factor loadings		Factor loadings		Factor loadings		Factor loadings	
Variable	Factor1	Factor2	Factor1	Factor2	Factor1	Factor2	Factor1	Factor2
(1) *Polity*	0.88	-0.25	0.91	-0.26	0.89	-0.23	0.94	-0.25
(2) *Vpol*	0.99	-0.11	0.99	-0.08	0.99	-0.10	0.99	-0.08
(3) *Vlib*	0.99	0.03	0.99	0.03	0.96	0.13	0.96	0.20
(4) *Vpar*	0.98	-0.01	0.98	-0.02	0.98	-0.07	0.98	-0.04
(5) *Vdel*	0.99	-0.02	0.99	-0.01	0.96	0.13	0.95	0.20
(6) *Vega*	0.97	0.16	0.98	0.16	0.94	0.24	0.93	0.29
(7) *Income*	0.70	0.25	0.73	0.21	-0.16	0.65	-0.36	0.84

The gray shading indicate results with a low reliability. Factor2 in the rightmost analysis is a borderline case, but it is done on 16 observations only. The two abbreviations are ‘eigenv’ is eigenvalue and ‘cumul’ is cumulative.

2.3 A comparison of the correlations and factor analyses in Papers #1, #2 and #3

Tables 2 and 4 are found in all three papers.

#1 brings the tables for all 9 variables from 1972-2016. Thus, the two Freedom House indices are included. The analysis looks at the division of the data in the Main and the OPEC sample just as at present.

#2 use the same data as #1, but divide the data in the M-Main and the MENA sample, where MENA is the Middle East and North Africa. The MENA sample includes 18 countries of which 8 are also in OPEC.

#3 (the present) include 7 variables from 1960-2016. The analysis looks at the division of the data in the Main and the OPEC sample.

The 6 matrices and factor analyses for the Main and the M-Main samples are practically the same. Thus, there is one and only one strong common factor in the data. It is the Democratic Transition, as analyzed by the kernel regressions in the next section.

The 4 matrices and factor analyses the OPEC-sample are also very similar so democracy falls when income rises in oil countries.

The 2 matrices and factor analyses MENA-sample resembles the ones for the OPEC sample, but the negative income dependency is a bit smaller.

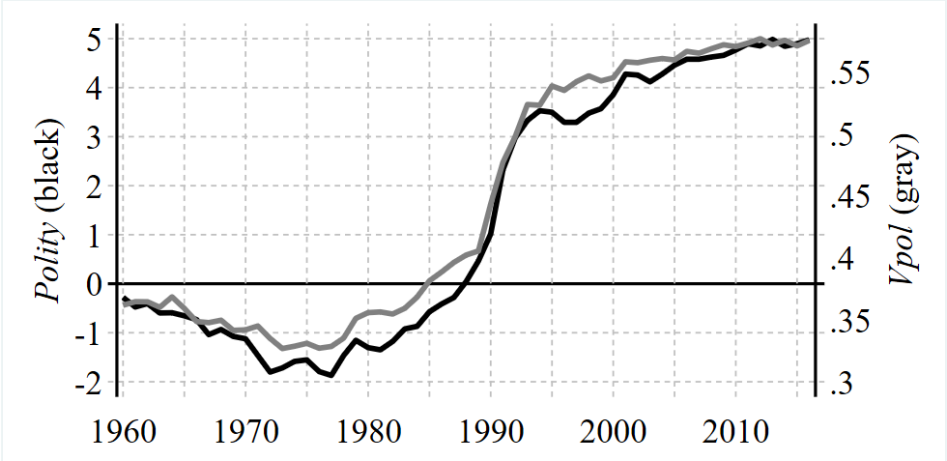
3. The grand pattern in the variables

Section 3.1 compares the development over time. Section 3.2 gives kernel regressions on unified data organized by income for the Main sample. Section 3.3 shows the same kernels for the OPEC exception. Section 3.3 compares the results from Papers #1, #2 and #3.

3.1 The development over time of the cross-country average for the Main sample

Figure 1 gives the annual cross-country averages over time for the two indices. The development is as similar as one could hope. The averages are calculated for a growing sample, and as most of the countries entering after 1960 are poor, this decreases the slope of the two curves.

Figure 1. Annual cross-country averages of *Polity* and *Vpol* (Polyarchy)



3.2 Estimates of Democratic Transition by Kernel regressions

The Democratic Transition is the path of the political system as a function of income, when a country develops from a traditional to a modern society, as explained in considerable detail in Paldam (2021). It is a well-determined curve when estimated on large unified dataset by kernel regression, $Polity = K^{Polity}(Income, bw)$, where *bw* is the bandwidth. Figure 2 is this estimate for the six democracy indices in the Main sample.

The six curves all look as perfect transition curves. That is, they have a stable level at the low level and at the high level and a smooth path in between. The curve is very stable and the has been replicated in all papers of the project as discussed at the end of this section.

Figure 2a. The Democratic Transition in Main sample. For *Polity*, $P = K^P(y, 0.5)$

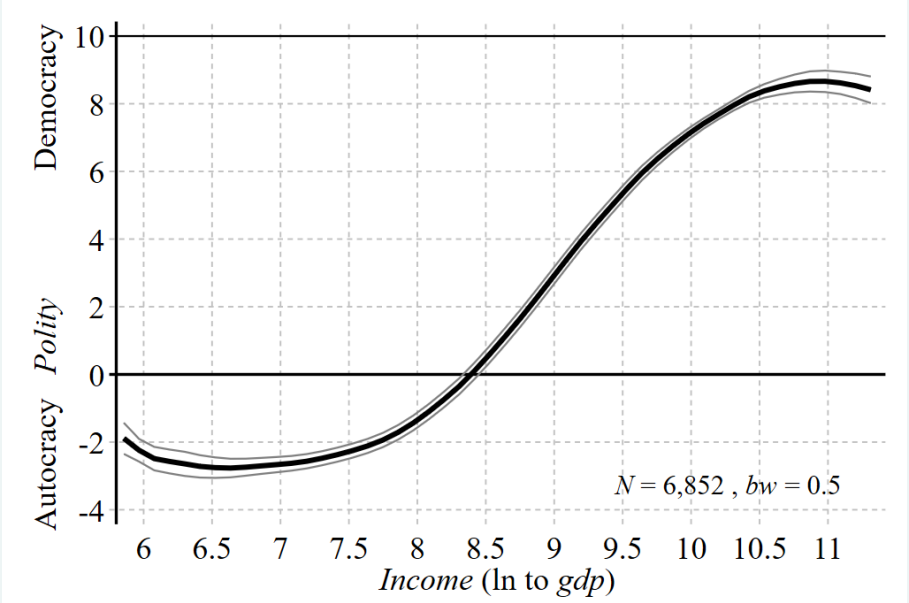
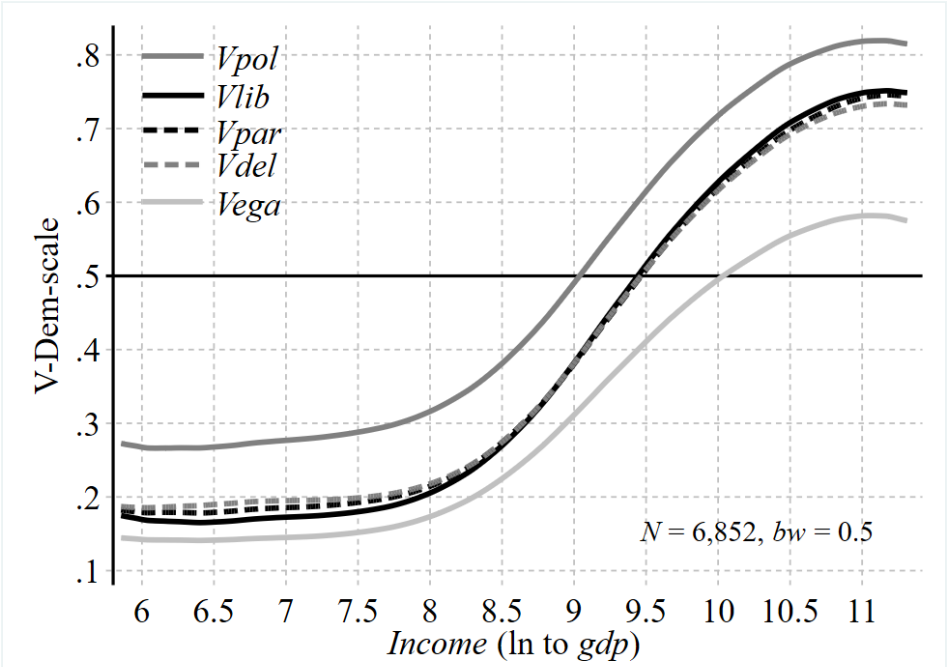


Figure 2b. For V-Dem indices, $x = K^x(y, 0.5)$, where x = *Vpol*, *Vlib*, *Vpar*, *Vdel* and *Vega*



Figures 2a and 2a include the narrow 95% confidence intervals. The confidence intervals are similar for the five transition curves on Figures 2b and 3b, but they are omitted as they clutter the graph. The bend at the top is due to three outliers (Bahrain, Oman and Singapore), Polity converge to 10 if they are omitted; see Paldam (2020).

3.3 The OPEC exception

It is well known that the OPEC countries do not have a democratic transition, and it was also suggested by Tables 2 and 4. Figure 4 gives the same curves as Figure 3, but for the OPEC sample. The sample is much smaller so the confidence intervals are wider.

Figure 3a. OPEC sample. For *Polity* index, $P = K^P(y, 0.5)$

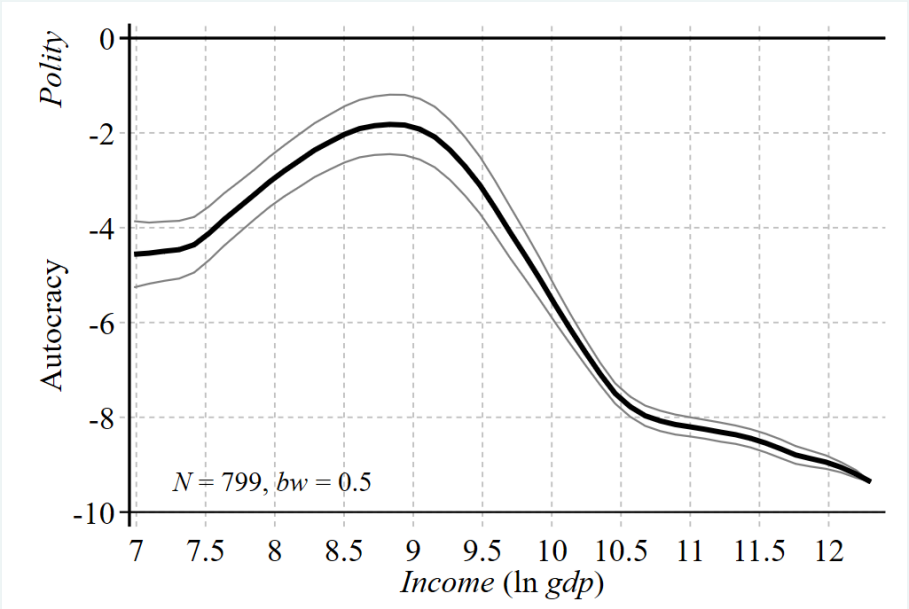
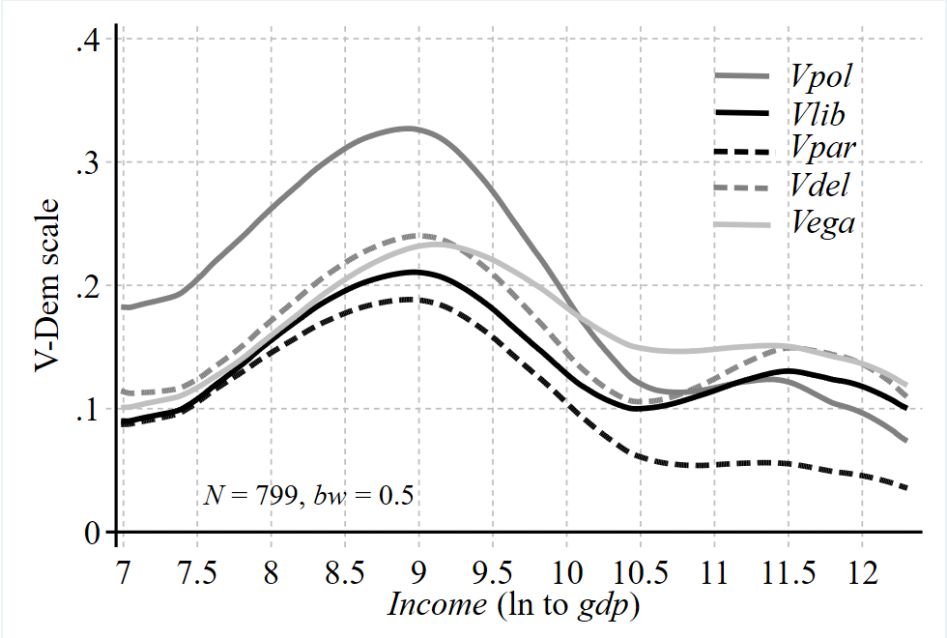


Figure 3b. For V-Dem indices, $x = K^x(y, 0.5)$, where x = *Vpol*, *Vlib*, *Vpar*, *Vdel* and *Vega*



Once again, Figures 3a and 3b give the same picture. As expected the income dependency in the OPEC countries is different. Where the countries in the Main sample go through a transition to democracy, the OPEC countries move to more autocracy.

An explanation is that when the large tax revenue from resource rents goes to the treasury that is under control of the ruler, it permits him to spend lavishly to consolidate his regime. It may also matter that the richest oil countries are Muslim.

From now the OPEC exception is excluded, so everything deals with the Main sample with N = 6,852 observations for 139 countries.

4.3 The Democratic Transition, comparting the results from Paper #1, #2 and #3

The factor analysis in Table 4 show that *income* and the 6 political indices and has one and ony one strong common factor, and Figure 2 shows one such factor, so it must be the same one.[9]

Figure 4 is calculated from the 6,852 observations for the main sample for *Polity* and *Vpol*. Each series is unified (as for Figure 2) and sorted by income and then a moving standard deviation is calculated for each of the 6,751 intervals of 101 observations. These standard deviations are reported at the income of the midpoint. Once again the two curves are similar.

In 1960 the transition had started in all countries. Most poor countries had been colonies of the richest countries – this weakened the traditional political system. Still it is clear that countries were more stable when they were closest to the traditional society, and the systems surely stabilize at high income.

Figure 4. The regime variation over income

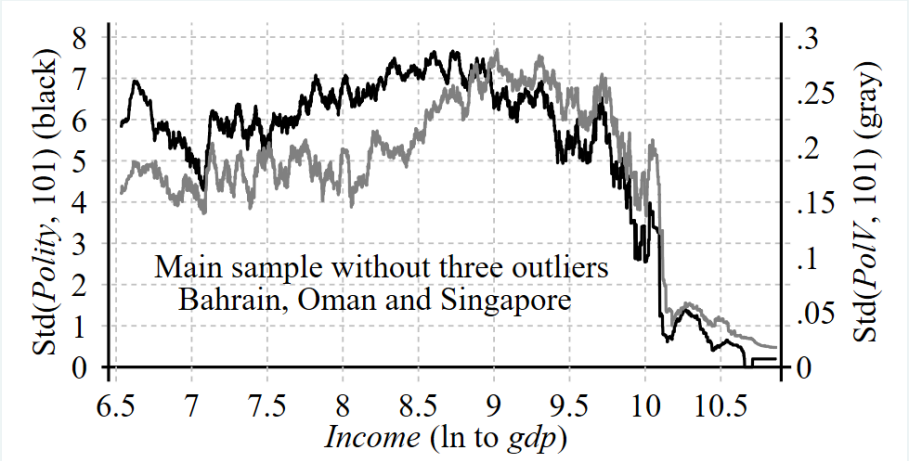


Figure 2 is found in all the papers of the project in several variants. Paper #1 show the curve for the Main sample 1972-2016 for the three main indices: the *FH*, the *Polity* and the *Vpol* indices. Paper #2 report the same curves for the M-Main sample. In addition the curve is is estimated for the 5-year averages of the data and for the country averages. Paper #3 (the present) report the curve for 1960-2016 for *Polity* and all five V-Dem indices. All of theses estimates of the Democratic Transition show almost the same curve. The Democratic Transition is very strong in the data.

However, the income dependency of the indices are a bit different for the OPEC and the MENA sample. The curves are much flatter for the MENA sample.

[9] A set of robustness tests for the Transition it the Polity index is reported in Paldam (2021). It also shows that the transition occurs in long time series. Paper #2 shows that it generalizes to the indices from Freedom House.

4. A conversion to the Polity scale: The *PVpol*-variable

The discussion from now look at *Polity* and *Vpol* (Polyarchy) taken as the main index from the V-dem project. The rest of the paper compares results for country groups and countries. This requires that the indices are converted to the same scale. Section 4.1 shows that the relations between the indices are non-linear. Section 4.2 choses the best liner approximation, converting *Vpol* to *PVpol*. The average numerical difference of *Polity* and *PVpol* is 3 Polity points. Sections 4.3 and 4.4 interpret the non-linearity of the relations, and the difference of the three points.

4.1 Non-linear relations between the indices

Figure 5 shows that the distribution of the two indices has some similarity, but while *Polity* are close to symmetry this is not the case for *Vpol*. Figure 6 shows that the consequences when *Polity* is used to explain *Vpol*. The relation between the two indices is not linear.

Figure 5. Probit diagram for *Polity* and *Vpol*

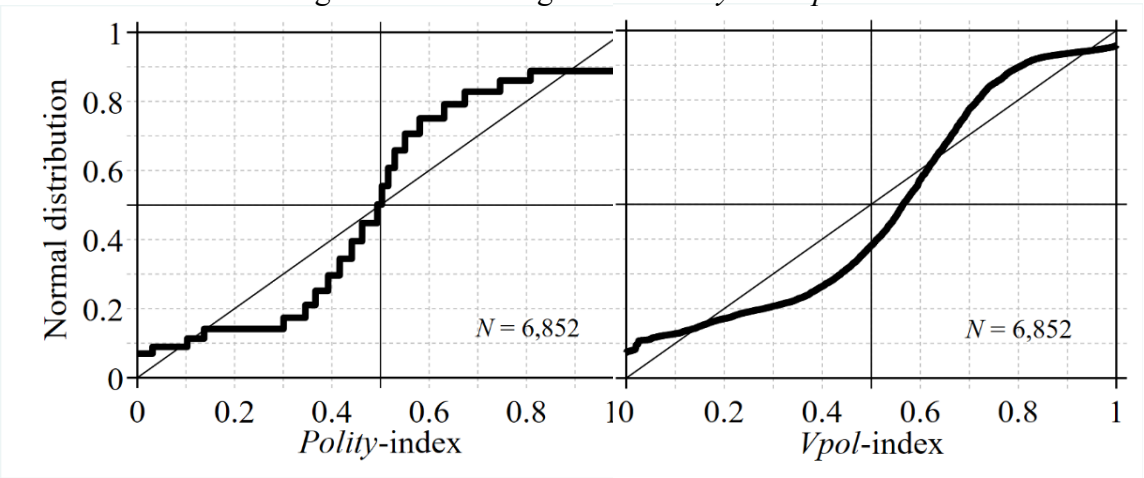
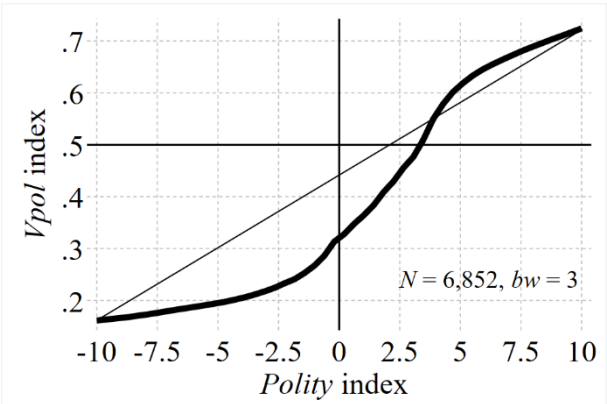


Figure 6. *Vpol* explained by *Polity*



Note: The 95% confidence intervals are so narrow that they are hidden within the curve

4.2 Chosing the best linear conversion

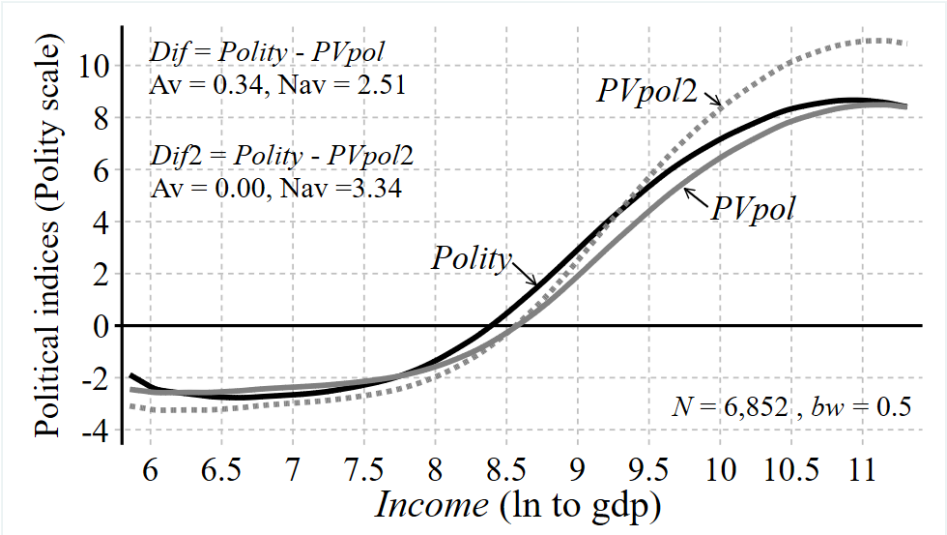
A useful conversion formula has to be transparent and easy to use. In spite of Figure 6, it has to be linear. It requieres two fixpoints. Table 5 reports the choices of fixpoints for two formulas: (1) Fixes the two steady states on Figures 2a and b. (2) Fixes the average and standard deviation. The two conversions give the transition curves seen on Figure 7. I think that the best conversion is *PVpol* (see Appendix for aditional evidence).

Table 5. Fixpoints for two conversions, where *Vpol* becomes *PVpol* in the Polity scale

	Name	Conversion	Fixpoints		Original scale		Converted
			Income in steady states		*Polity*	*Vpol*	*PVpol*
(1)	*PVpol*	Fixing the two steady states	Traditional	6.5 - 7	-2.5	0.27	-2.5
			Modern	10.5 - 11	8.5	0.82	8.5
				Formula (1)	*PVpol* = 20 *Vpol* – 7.9		
			Equal avr and std to *Polity*		*Polity*	*Vpol*	*PVpol2*
(2)	*PVpol2*	Fixing basic *Statistics*	Average		1.65	0.46	1.65
			Standard deviation		7.45	0.29	7.45
				Formula (2)	*PVpol2* = 25.7 *Vpol* – 10.02		

The difference between the two indices is *Dif* = *Polity* – *PVpol*. The figures report the average (avr) and the average of the numerical values (navr). The *PVpol* conversion has the fault that the average is 0.4, but when it is deducted from numerical average, it becomes three, taken as the true value of the numerical mean.

Figure 7. A comparison of the transitions in *Polity*, *PVpol and PVpol2*



5. Comparing *Polity* and *PVpol* for the countries

This section looks at country cases to find the largest differences in either the numerical levels of the two indices or their correlation. The ones singled out in the tables are analyzed in Paper #1. The discussion distinguish between DCs, developed countries, OPEC countries, and LDCs, less developed countries. Section 5.1 gives a few cases from DCs and OPEC countries. Here the differences are relatively small. Section 5.2 looks at the 116 LDCs.

5.1 The 23 DCs and the 16 OPEC countries

The data contains 23 countries classified as West. Of these Cyprus, Greece, Israel, Portugal and Spain were much below in average income at the start of the period. Three cases are singled out in Table 6: Israel where both the levels of the two indices is rather different and their correlation is negative and large. The two indices for the three countries are depicted in Paper #1.

Two more countries have relatively large differences in the level of the two indices: Cyprus and Italy where Navr(*Dif*) is 3.36 and 1.71 respectively.

Table 6. Some statistics for 23 DCs and 16 OPEC countries

Country	Income	*Polity*	*PVpol*	Navr(*Dif*)	Cor
Israel	9.85	7.23	6.77	2.05	-0.78
Switzerland	10.39	10.00	8.42	1.59	Na
USA	10.44	9.72	8.46	1.37	0.42
Average of 23 West	10.03	9.16	8.46	1.07	0.42
Averages of 16 OPEC	9.28	-4.43	-3.40	2.52	0.80

The correlation between *Polity* on *Vpol* is termed 'Cor'.

The data contains 16 countries have been or are OPEC members. A couple of those have large differences in the level of the two indices. It is Nigeria and Kuwait where Navr(*Dif*) is 4.00 and 4.89 respectively. However, in both countries the correlation between the indices is high.

6.2 The 116 non-OPEC LDCs

The remaining group of 116 countries are the LDCs of the sample. Table 7 cover the 6 most extreme cases, that are depicted in Paper #1.

The first three countries in the table have an extreme difference in levels. It is Malaysia, South Africa and Colombia. In addition Pakistan, Albania, El Salvador and Turkey with Navar(Dif) of 5.30, 4.94, 4.84 and 4.84 respectively are large outliers. In addition 3 countries

with short series are in this group, Montenegro, Macedonia and Armenia with NumDif 7.08, 5.74 and 4.81 respectively.

Table 7. Some statistics for 23 DCs and 16 OPEC countries

Country	Income	*Polity*	*PVpol*	Navr(*Dif*)	Cor
Malaysia	8.98	4.88	-2.30	7.17	0.55
South Africa	9.05	6.16	0.14	6.02	0.96
Colombia	8.78	7.44	1.97	5.47	-0.08
Jamaica	8.59	9.58	4.62	4.96	-0.91
Zimbabwe	7.91	-0.72	-2.86	4.80	-0.68
Vietnam	7.44	-7.16	-4.22	2.94	-0.63
Average 116 countries	8.27	0.15	-0.26	3.05	0.71

The Table also cover the only three LDCs with large negative correlations between the two measures, Jamaica, Zimbabwe and Vietnam.

6 Conclusions

The analysis is an empirical comparison of the *Polity* index from the Polity project and the five democracy indices from the V-Dem project, where the Polyarchy index is considered the main one. Both the grand pattern and the individual country scores have been compared.

No natural scale exists for political system indices, and the aggregation problem is large; but the grand pattern in all six indices proved to be the same. This applies to both the time series for the cross-country average and the underlying function of income across the full development from traditional to modern society. Here all indices showed the same Democratic Transition – this also applies to the two indices from Freedom house (see Paper #2). The similar grand pattern means that the two projects do measure the same irrespective of all conceptual differences. The five V-Dem indices are highly correlated. Thus, to show a certain effect is robust it is much more convincing if the effect replicates across projects than across indices from the same project.

To compare the individual country scores, the two indices needed to be in the same scale. The similar transition pattern allowed a rescaling of the Polyarchy index from the V-Dem scale to the Polity scale. This gives the *PVpol* index.

The *Polity* and the *PVpol* indices often differ – sometimes substantially. The Polity and the V-Dem projects publish extensive codebooks that explain how the scores presented are reached. However, it is still clear that a great deal is due to debatable assessments. The assessments are similar within projects, but not between projects. This is inevitable, as perfect democracy is impossible, but a range of good institutions is possible. In addition, there is a gap between what a many regimes claim, and what we all can see is real. Thus, it should be no surprise that the indices differ. The average numerical difference between the two indices is about three Polity points.

The paper argues that the two and a half to three point's gap reflects the ***measurement uncertainty*** when independent groups of able and diligent researchers try to measure democracy in the world. The reason that the two indices tell the same grand story is that the grand pattern deals with averages where the uncertainty vanishes.

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Polity project, home page https://www.systemicpeace.org/*polity*project.html

V-Dem home page: https://www.v-dem.net/en/login/

Measuring Democracy Project. The present paper is paper #3 in my project that consists of four papers

#1. Main paper: Measuring Democracy. Eight indices: Polity, Freedom House and V-Dem

#2. Measuring democracy, 1972-2016. How different are eight democracy indices?

#3. Measuring democracy, 1960-2016. How different are the Polity and the V-Dem indices?

#4. Net-Appendix to: Measuring democracy

The papers are all from 2021. They are available at http://martin.paldam.dk/GT-Main2.php

[10] Contains a detailed reference list of seven pages.