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The long-run path of the democratic transition

The inevitable collapse of three pillars model

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Abstract:

The paper explains two centuries of development of the political systems by the underlying economic fundamentals. First it gives a summary of the evidence from a handful of papers showing that democracy indices have a strong empirical relation to income in the average country. The relation looks like a transition, and the main causal direction is from income to democracy. Then this path is explained by the gradual but inevitable collapse of the three pillars model (king/aristocracy/Church) that was the steady state system over half a millennium before modern development. Development caused the agricultural and religious transitions that undermined the old political equilibrium, so that the model broke down in leaps and bounds. This explains why the main causal direction is from development to democracy.

Keywords: Democratic transition, long-run changes
Jel: N10, P16, O11

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1. Introduction

A previous paper in this journal, Paldam and Gundlach (2018), demonstrated three points:

(i) Empirically, democracy indices, *X*, for the representative country change along a well-defined long-run path from authoritarian to democratic when income grows from the traditional to the modern steady state. The path has a *distinct* transition form, ⌒.[2]

(ii) The changes in *X* are in jumps that typically happen a decade apart, see A2 of Appendix. Between jumps political systems are in status quo equilibrium. It is broken by random triggering events.

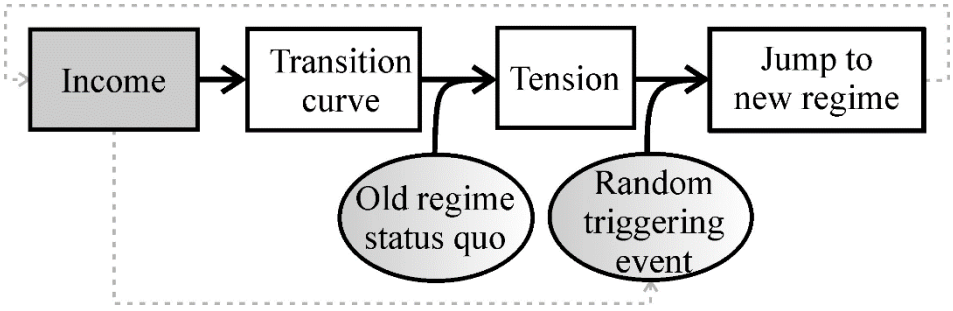
(iii) The transition path is an attractor for the jumps when they happen. The tension between the actual and the transition path explains the direction of the jumps. They tend to overshoot the path, giving the adjustments some cyclicality around the transition path.

Figure 1 illustrates the model. Relative to the model income is exogeneous, and it causes the political regime to move around the transition path. The underlying path is overlaid with a great deal of fuzziness. The transition is the skeleton of the politico-economic history – not the full body. The previous paper took the path as a statistical regularity.

The present paper tries to explain the long-run path in a way that is so basic that it is believable that it generalizes across countries. It demonstrates why the main causal flow is from income to democracy.

Figure 1

The jumps model



From Paldam and Gundlach (2018). The gray boxes are exogenous. The *old regime* is predetermined. *Triggering events* are random. The small effect of democracy on growth is spurious, so the two gray arrows are dashed.

[2] Economic theory often gives vague predictions such as the sign of the slope. But transition theory is more *distinct* as it predicts a specific non-linear functional form. The two steady states, where the transition curve is horizontal, are the traditional and the modern one. They are normally quite different and a couple of centuries apart.

It should be mentioned that the P-o-I (primacy-of-institutions) school has a different view. It argues that the causal flow is the reverse. Development is caused by good institutions. Thus, if a country democratizes, it will, within a reasonable time horizon, gain a higher income. That is, the small positive correlation between democracy indices and the growth rate is causal and a key to long-run growth. It is the gray dashed line at the top of Figure 1. The P-o-I school contains eminent researchers. Consequently, the author has discussed the structure between income, democracy, and growth at some length and concluded that the correlation between democracy indices and growth is spurious as it is due to the transitions of democracy and of growth; see Paldam (2024a).

A second problem deals with the choice of democracy index. There is a dozen such indices available, and it is (hotly) debated if one is the best. To circumvent this discussion, the author has replicated the transition curve on eight indices, including the five indices from the V-Dem project. The transition looks much the same, see Paldam (2021). This paper uses the two indices that provide long time series: polity and polyarchy. They are used in parallel, and they give similar results.

The transition occurs in annual data (as shown), for 5-year and 10-year periods, as well as for country averages; it also appears in the data for separate decades; it is found in the data for all major country groups, with one exception – the overlapping OPEC/MENA/Arab group – see sections 2.5 and 4.3. Thus, the transition is strong and robust in the data. The paper demonstrates three points:

(I) The traditional power structure had a ***strong and narrow*** base, making the political system authoritarian, and the steady state equilibrium.

(II) In all countries where the grand transition occurred, it ***destroyed*** the traditional power structure gradually, but thoroughly.

(III) The modern power structure has a much ***broader*** base, resulting in democracy.

These points are demonstrated using well known and robust theory. The paper limits traditional society to the 500 years from year 1300 to 1800, where transition theory claims that the political regimes were similar across countries and in steady state, so that when disturbed by a shock, it returned to the same system. The stability at the two steady states suggests that the frequency distribution of the reported values of democracy indices is two peaked, as is indeed the case, see Appendix A2.

To understand the process, the paper mainly looks at Europe, where countries are old,

and the political history for the last 700 years is well-known. Some historical narrative is necessary to understand the period from 1300 to 1800. Much the same story can be told about South and East Asia, but there are differences, which will not be discussed.

The policy advice from this model is that if countries go ahead developing, they will (eventually) turn into democracies. Democracy is only the steady state equilibrium in developed countries, so that it remains/returns if a triggering event causes a shock to the system. If countries democratize prematurely, it will only last until the next triggering event occurs.

Section 2 shows how the transition looks. Section 3 documents that all old political systems were kingdoms about 1800 and had been so for more than 500 years. It argues that the power structure in traditional systems rested on ***three pillars***: the king, the feudal aristocracy, and the Church.[3] Section 4 demonstrates that two of these pillars crumbled during the grand transition. Section 5 argues that the new classes emerging due to the transition were much broader and demanded mass representation. Section 6 gives a couple of examples, and section 7 concludes. An Appendix (App) lists the countries in the sample analyzed and shows the frequency distribution of the two democracy indices.

For easy reference Table 1 defines some terminology, variables and the samples used.

Table 1

Terminology and variables used

Part 1: Transition theory and terminology				
Steady state	Growth equilibrium. Everything grows with 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: Political system, *X* = *P, V*. From the Polity and V-Dem projects, see references				
P = *Polity*	*Polity*2 regime index, integer in interval [-10, 10], from authoritarian to democratic			
V = *Polyarchy*	Regime index, 2-3 decimals in interval]0, 1[, from authoritarian to democratic			
Part 3: National accounts variable, *y*. From the Maddison Project, see references				
GDP, *gdp*	Gross Domestic Product, in fixed PPP, purchasing power parity, prices, *gdp* is per capita			
y = ln(*gdp*)	*Income*, the natural logarithm to *gdp*. One logarithmic point is a *gdp* change of 2.72 times			
Part 4: Samples, unified panel-data sorted by income, numbers of observations, *N*. For 1800-2018				
Sample	Main; see Table A1 in Appendix		OPEC; see Table A2 in Appendix	
	Countries	*N*	Countries	*N*
	137	11,120	18	978

The three samples are all observations where the data for all observations are available. They were downloaded in the summer of 2023. The countries and years covered are listed in the appendix. OPEC countries are analyzed in sections 2.4 and 4.3 only. The data covers only countries that are formally independent and hence may choose their own political system. The observations where polity is zero are omitted.

[3] The institution of any religion is termed a *Church*, while *church* is a building used for religious services.

2. The evidence using the Main sample

Table 2a gives the ***big*** correlations between the series. They are cor(y, P) ≈ 0.58, cor(y, V) ≈ 0.65, and cor(P, V) ≈ 0.87. Income data are noisy log normal, growth rates are almost normal but with long tails, and democracy indices are two-peaked; see App A2. The Sperman rank correlation coefficient converges to the (normal) Pearson coefficient in normally distributed data, so a difference between the two indicates deviations from normality. The factor analysis in Table 2b demonstrates an important point: The data in the sample have one and only one common factor, which does not include growth. Figure 2 shows how that factor looks.

Transition theory suggest equivalence: Long time series and wide cross-country samples that includes countries at different stages in the transition should give the same picture. Section 2.3 shows that they do and assesses what 'wide' and 'long' mean.

Table 2

Some basic statistics for the Main sample

Table 2a. The big correlations

	Cor(y, P)	Cor(y, V)	Cor(P, V)
Pearson's	0.567	0.693	0.859
Spearman's	0.588	0.630	0.880

Recall definitions from Table 1. While Table 2a uses all N = 11,120, Table 2b uses only N = 10,799 observations as the calculations include the growth rate, to show that it is not part of Factor1.

Table 2b. Factor analysis

	Factor1	Factor2
Eigenvalue	2.127	0.118
Variable	Factor loadings	
P, polity	0.872	-0.017
V, polyarchy	0.935	-0.017
y, income	0.698	0.154
g, growth	0.076	0.140

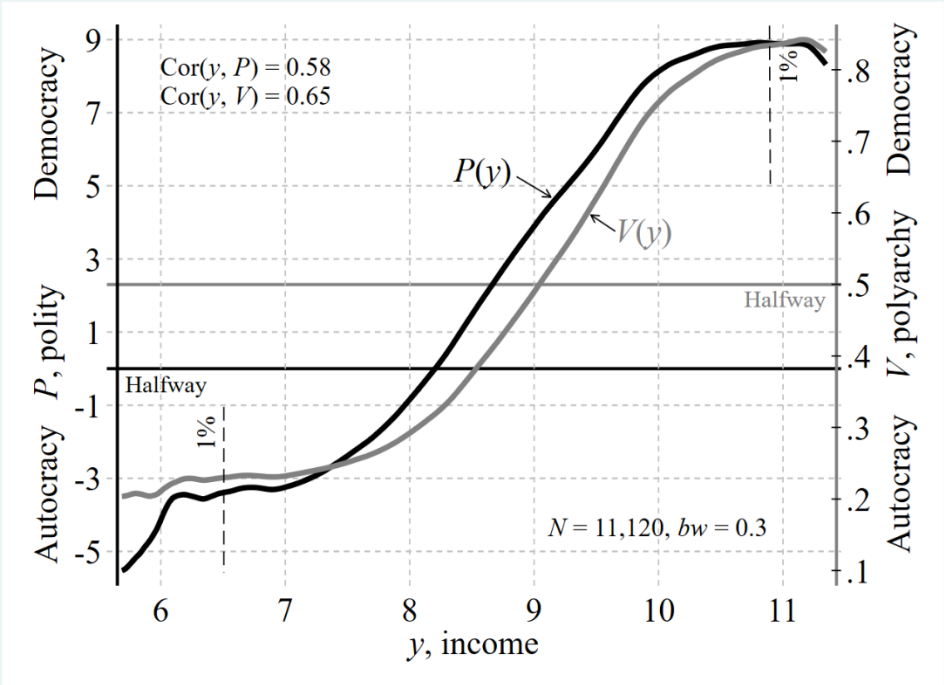
2.1 Kernel regressions on unified data

The paper claims that transitions are general relations in the data, and consequently data may be unified across countries. Thus, the (3, 137, 219) panel, for three series (y, P, and V), 137 (non-OPEC) countries and 219 years are unified into a (3×137×219) matrix, with 30,003 rows. Almost 2/3 of the rows are missing, so the unified data are a (3×11,120) matrix. The 11,120 rows have no natural order, but the analyses order the rows by income.

The kernel regression is a smoothed moving average with a fixed bandwidth. Hence, it assumes no theory or functional form. Figure 2 shows two kernels, which 'explain' polity and polyarchy by income. The confidence intervals are narrow, which justifies the unification of the data. The curves look precisely as transition curves should. Both curves have a flat section for traditional society with income y < 7.2, and for modern society with income y >10.3.

Figure 2

The democratic transition estimated by kernel regressions on the Main sample



The gray curve and lines – including the right-hand axis – are for the polyarchy index. The 95% confidence intervals are between 1 and 2% except in the thin 1% of the data at the ends. The graph shows the difference between the two indices, see also App A2. Polity is much more friendly to less developed countries trying to be democracies. Also note the difference between the halfway lines.

The transition is the curve between the two equilibria. The strongest transition happens for income $7.5 < y < 10$. Thus, a curve that looks precisely like a transition curve should look can be drawn within the *narrow* confidence interval for both indices. This is strong evidence.

2.2 Equivalence of cross-country and time series results

Figure 2 uses a mixture of data in two dimensions, over time and across countries. Figure 3 looks at the two dimensions in isolation and confirms equivalence: The correlation between countries (Figure 3a) and within countries (Figure 3b) both give roughly the big correlation. Years are in sequence, so the correlations on Figure 3a are connected, while the countries have no sequence, and thus Figure 3b shows a point scatter for the correlations over the number of observations available for each country.

Figure 3a shows that when the cross-country sample is sufficiently wide, the correlation curve is close to the big correlation: The democratic transition was weak before 1850, and here the data are thin, so the correlations first stabilize from about 1885. Thus, *wide* appears to be a small number such as 12, but to be on the safe side 20 countries are preferable.

Figure 3

Between countries and within country correlations

Figure 3a. Between countries, annual cross-country correlations

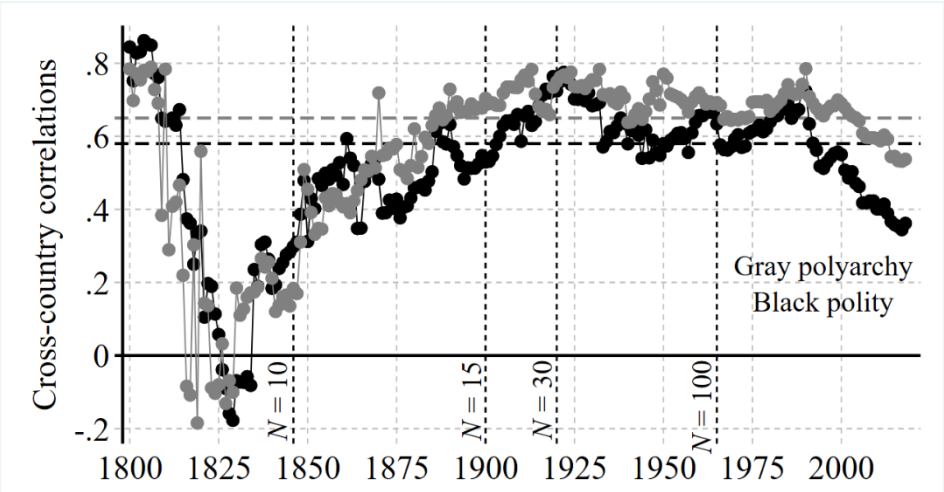
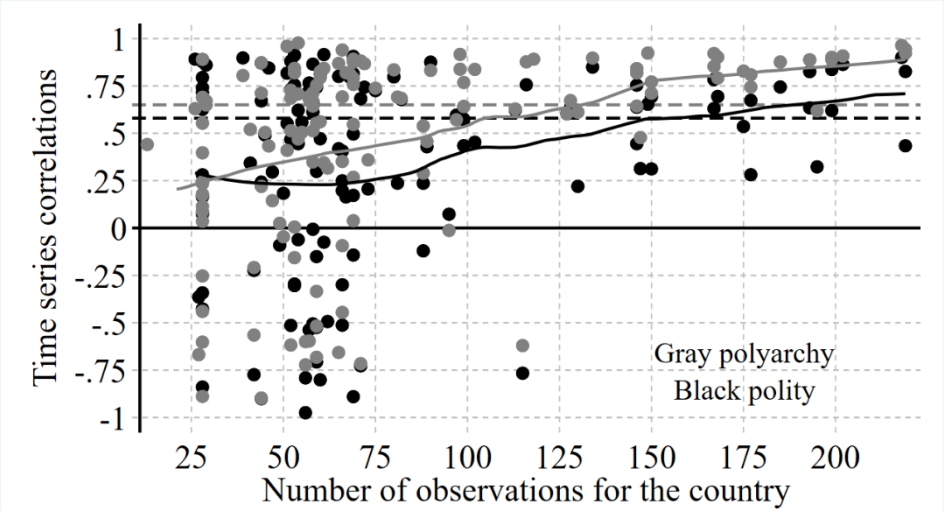


Figure 3b. Within countries, time series correlations for each country



The two curves on Figure 3b are kernel regressions with bw =15, and the two dashed lines are the big correlations, from Table 2a.

Figure 3b shows that countries are different as to regime history, but the differences are much smaller in the long run than in the short run. Here the correlations stabilize for $N > 120$, which assess *long*.

2.3 Causality: Looking for the main causal direction

The analysis above has been presented as if causality is from income to the political system. Causality is a key concept in economics. It is also a tricky concept. One may see causality as a

concrete and direct effect: When you kick a ball, it moves. It is your decision to kick, and the time lag between the decision and its implementation is short.

Obviously, the causal relation(s) between income and democracy is less concrete and direct. Income and regime indices are macro aggregates of many indicators with complex links that often contain substantial lags that make it difficult to apply the standard tests – this is why the paper looks for the main causal direction.

The lags are due to long spells of constant regimes that end when a random triggering event occurs. Also, the reforms caused by regime changes have both long implementation lags and long reaction lags. The lags are different for different reforms, and many reforms have J-curve effects, as the costs come well ahead of the benefits. In addition, they are often preceded by a crisis that convinces people that a reform is needed.

The two main families of econometric causality tests are *Granger tests*, which are difficult to apply to unified data when variable lags are involved, and two-stage instrument variable tests. *TSIV* tests need instruments that can handle the long lags involved. Such instruments are developed in Gundlach and Paldam (2009).[4] They give the long-run DP, development potential, of countries. When applied, the DP-TSIV test shows that income can explain democracy, while democracy cannot explain income.

The kernel method used does not rely on a precise lag structure, and it allows a less formal test of causality. It compares the reverse kernel regressions $X(y)$ and $y(X)$,[5] where X is a democracy index. They are quite different: $y(X)$ gives unclear pictures, while $X(y)$ gives a clear picture in accordance with the theory, see Figure 2. Thus, it confirms the causality implied by transition theory, see Paldam (2024a).

However, for the economist causality rests on the credibility of the theory used to explain the relation. The paper uses a simple and robust history-model to explain the transition path. It is the good old ***three pillars model*** for traditional society. As mentioned, the pillars are king, aristocracy, and Church.

2.4 The OPEC exception

The two curves for the OPEC samples (from 1960) are shown in Figure 4. The two kernel estimates are similar. Neither curve shows a democratic transition. There is no overlap to the

[4] The tests are re-run with updated data in Paldam (2021). They are also run on the data for each year from 1820 to 2016, giving robust results.

[5] The kernels sort the data by the explanatory variable. Consequently, the two estimates use different orders of the variables and hence they differ.

curves on Figures 2 and 3. Even at the start for incomes in the range from 7 to 9 where it looks as if a transition begins, the curves have a lower path than in the main sample, and then they turn down in the rich oil countries. A theory for the OPEC exception will be given in section 4.3. Note that the peak of the curve is at $y = 9.5$, where oil countries get rich. [6]

The confidence intervals on the two graphs in Figure 4 are wider than the ones on Figures 2 and 3, but the number of observations is also much lower.

Figure 4

Kernel estimates of the $X(y)$ curve in the OPEC sample

Figure 4a. For the polity index

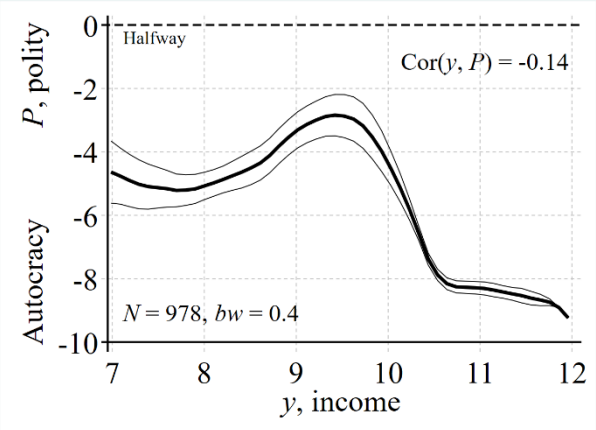
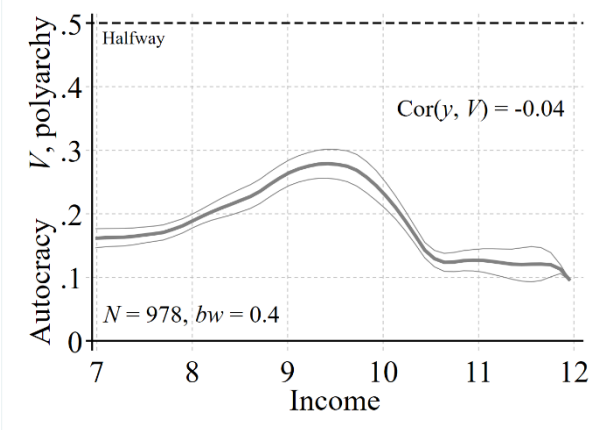


Figure 4b. For the polyarchy index



3. The traditional steady state from 1300 to 1800: The three pillars model

Figure 2 showed that the transition curve was flat at the start for traditional society. Data are thin at the start, where the curves are a bit wobbly. However, we know from Maddison (2001, 2003) that economic growth was very modest in the traditional period, where *gdp* doubled, as it grew by –10 to 20% per century. Thus, the economic system was in a steady state.

About 30 countries are old as some version of the country had existed since 1300, and the history for the period is well documented. Panel A of Table 3 shows the data for the 23 countries with observations for the polity index 1800/10. 22 of the countries are old. They were all monarchies. Column (6) of Table 2 gives crude estimates of the starting year for the political systems in the 23 countries. They have a history of on average 650 years of a similar political

[6] The same exception is found in the MENA sample of Middle Eastern and North African countries. The data contains 18 OPEC and 18 MENA countries, where 10 countries are overlapping. Nine of the overlapping countries are Arab, which give spatial correlation that extends to most MENA countries. Thus, it is hard to separate the effects; see Paldam (2024b).

system. The polyarchy index tells the same story for the same countries. Altogether, the world had approximately 30 old countries, and of those at least 28 were kingdoms.[7] From the historical survey in Binswanger *et al.* (1995), feudal institutions are equally stable, though they were gradually strengthened.

Table 3

The 22-23 countries with *polity* data in 1800/10 and in 2008/18

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Panel A: 1800/10 mostly kingdoms						Panel B: 2008/18 mostly democracy			
No	Country	*Polity*	*gdp*	Regime	Starts	No	Country	*Polity*	*Gdp*	Regime
	In the 19th century various German-area co-operation arrangements; see Figure 1									
1	Bavaria	−10	1,600	Kingdom	1200?	1	Germany	10	44,000	Democracy
2	Prussia	−10	*1,600*	Kingdom	1700					
3	Saxony	−10	*1,600*	Kingdom	1430					
4	Württemberg	−7	*1,600*	Kingdom	1500					
5	Austria	−10	1,800	Kingdom	1300?	2	Austria	10	42,000	Democracy
							Others [a]	10	35,000	Democracy
	Split countries									
6	China	−6	900	Kingdom	200?	3	Same	−7	13,000	Communist
						4	Taiwan [b]	10	42,000	Democracy
7	Korea [c]	1	*800*	Kingdom	1500	5	Korea S	8	35,000	Democracy
						6	Korea N	-10	1,500	Communist
8	Afghanistan	−6	*800*	Kingdom	1700	7	Same	−1	1,900	Mixed
9	Denmark	−10	1,700	Kingdom	900	8	Same	10	44,000	Democracy
10	France [d]	−8	2,800	Military	900	9	Same	9	38,000	Democracy
11	Iran	−10	800	Kingdom	0?	10	Same	−7	16,000	Theocracy
12	Japan	−10	1,300	Kingdom	1200	10	Same	10	37,000	Democracy
13	Morocco	−5	*700*	Kingdom	1100	12	Same	−5	7,700	Kingdom
14	Nepal	−6	*600*	Kingdom	1400	13	Same	6	2,400	Democracy
15	Oman	−6	*800*	Kingdom	700?	14	Same	−8	40,000	Kingdom
16	Portugal	−10	1,450	Kingdom	700	15	Same	10	25,000	Democracy
17	Russia [e]	−10	*800*	Kingdom	1550	16	Russia	4	24,000	More democratic
18	Spain	−10	1,500	Kingdom	1470	16	Same	10	31,000	Democracy
19	Sweden	−10	1,400	Kingdom	900	18	Same	10	43,000	Democracy
20	Thailand	−10	*900*	Kingdom	1600?	19	Same	2	14,000	More democratic
21	Turkey	−10	*900*	Kingdom	1100	20	Core same	4	19,000	More democratic
22	UK [f]	−2	3,300	Kingdom	900	21	Same	10	36,000	Democracy
23	USA [g]	5	2,600	Democracy	1781	22	Same	9	50,000	Democracy
	Average	−7.7	1,500		1150		Average	4.7	28,000	

Column (4): The *gdp* data in italics are interpolations. Column (6): The average starting year of 1150 means that the average political systems had lasted 650 years in 1800. Most countries have changed a little since 1800, but a few have changed a lot; they are in the two top sections. (a) The Austrian Empire had non-Germanic parts. (b) Taiwan is also termed Republic of China to stress its successor status. (c) This appears a high score for the regime of the Joseon kings. (d) The military dictator appointed himself Emperor. (e) Russia was the USSR from 1918 to 1990. (f) Democratic reforms had started. (g) The constitution in the USA was from 1789 shortly after the country became independent. It had the institution of slavery, and the franchise was limited, so democracy was limited.

[7] The exception, USA, was a new country in 1800. Another exception is Switzerland, which was fragmented in 1800, and never had much feudalism. Here the data starts in 1851.

Finally, few countries have had more than one change of religion per millennium. Thus, the traditional steady state had an amazing stability with the said three pillars, as further discussed in section 3. The table also shows that the countries which have developed into HICs (high-income countries), with *gdp* (per capita) of at least $30,000, are democracies.[8]

3.1 The economic basis of traditional society: Feudalism

The key is the remarkable stability of the feudal land ownership systems; see Boserup (1965) and Binswanger *et al.* (1995). Authors as Cheung (1969), and Stiglitz and Weiss (1981) have shown that feudal systems had some advantages for both tenant and owner, while Binswanger *et al*. stressed the power relation.

Section 4.1 shows that the share of agriculture in GDP was about 50% in traditional society, and the share of the population in agriculture was even higher, maybe 55%. The great majority of farmers were tenants, who had to deliver about 40% of the production to the landowner, and in addition 10% in tithe to the Church, so the peasants lost half the production. Farmers have always found ways to pay less. Landowners had extraction costs, from employing inspectors and other administrative staff. They also provided some services to their farmers, so the net extraction of ***feudal rents*** including ***tithe*** was probably 40%, or roughly 20% of GDP, leaving 25% of GDP to the farmers.[9] Most landowners were from the aristocracy, but there were also some freeholders, and both the king and the Church owned land. Thus, it varied, both across countries and over time, how the feudal rents were shared. Perhaps a typical division of the 20% feudal rents was that the aristocracy received 10%, the king 5% and the Church 5%.

The aristocracy was less than 1% of the population, so a simple calculation yields that the average aristocrat had an income of about 30 tenant farmers.[10] Much is known about the way the typical aristocrat and farmer lived, and it seems to tally with the 30 times difference in income. However, some aristocrats owned 1,000 farms, and others owned only a dozen. The income distribution was surely very skewed.

The king was typically a large landowner. In addition to land rent, he collected taxes on internal and external trade, and from certain necessities such as salt. However, it seems that kings rarely managed to collect much more than 10% of GDP. The Church collected the tithe, and it also owned a great deal of land. The population in the towns also paid something. This

[8] The 14 HICs had a *polity* score of -7.2 at the start, which has changed to 9.6 points today.
[9] The tenants also had to provide work – improving roads, etc. – and soldiers in time of war, so the contracts between tenants and landowners were quite complex and differed between countries and over time.
[10] The 55% farmers received about 30% of GDP, while the 0.7% aristocracy received 10%. Thus, the income relation is (12/0.7) / (30/55) ≈ 30.

also amounted to around 10% of GDP.

Thus, the three pillars were supported by 1/3 of GDP, with roughly the same amount behind each pillar. The shares fluctuated, but still the three pillars stood to support the system. Consequently, the basic system was solid when technologies and productivity stayed almost constant with annual growth rates around 0.1%.

One reason for the fuzziness of the path is spatial effects. If a country (such as the Netherlands) deviated from the pure version of the three pillars model, it was still influenced by the neighboring countries, so that it followed approximately the same path.

3.2 Political power in traditional society

The basis for political power was that economic power was concentrated in a small group. The aristocracy was strongly represented at the royal court, and it provided the top of the royal army as well as the top clergy. Thus, the top of society was a closely-knit group. Both the royal house and the aristocracy were hereditary and had privileges sanctioned by the Church.

Kingdoms had standing armies, though they were small in times of peace. The feudal lords also provided farm-boy soldiers in times of war, but the King was still the head of the army. They also needed some administration, and they built a little infrastructure. Kings also spent a great deal on conspicuous consumption. Both because they liked it, and to demonstrate their glory and power.

The Church had control over the monopoly religion. Traditional society was deeply religious, and this gave the Church much power. One aspect was that religion was an important factor of production. If rain failed, or was too much, the only recourse of the farmers was to pray. In the same vein, prayer was also the only available cure for most diseases. Peasants did not need to learn to read, as there was nothing to read in villages,[11] so literacy rates were probably below 5%. The medical profession was in low demand, as it could cure few diseases; see Porter (1997) on the late development of modern medicine. Hence, both the education sector and health sector were small. The Church ran the few schools and hospitals available.

Most feudal systems developed so that tenants gradually lost civil rights to become serfs, but peasants were marginalized politically anyhow. A few times peasants revolted, but most revolts failed, as the royal army moved quickly and with great brutality.

[11] Handwritten books were very expensive, and even after the introduction of printing in 1450, it took several centuries before a substantial number of books were available. In addition, paper was quite expensive before the industrial revolution.

3.3 Shocks to the system gives a (cyclical) return to the steady state

Coalition theory predicts that coalitions between three parts, where any two can dominate the third, are likely to be somewhat unstable, and sometimes power shifted between the pillars. Steady states are equilibriums with the property that when disturbed, they return to the equilibrium. Thus, long periods of stability were interrupted by occasional unruly periods, but then the ex-ante political system returned.

Many of the triggering events occurred because neither pillar was fully homogenous. For the period covered, the history of Europe is well documented. In most countries, a few dynastic struggles took place within the royal family, aristocratic families fought, etc. Occasional fights also occurred between king and Church. Most countries participated in a dozen wars, where provinces were lost or gained, and land ownership shifted from winners to losers.[12] Sometimes pandemics, notably the Black Death, swept the continents. Two large events were:

(I) The Reformation 1520-40, and the ensuing Thirty Years' War from 1618-48, which ended with the Westphalian Peace Treaty. It changed a few borders, and some countries were forced to allow two Churches,[13] but the economic/political system returned to *status quo ante*.

(II) The French Revolution 1789-99 and the ensuing Napoleonic Wars 1805-1815, which ended with the Vienna Peace Acts. Once again, some borders changed, but then the old situation returned, even in France, where the old kingdom was reestablished, and the weakened feudal aristocracy came back, though at that time modern economic growth had started.

4. The transition: Crumbling pillars

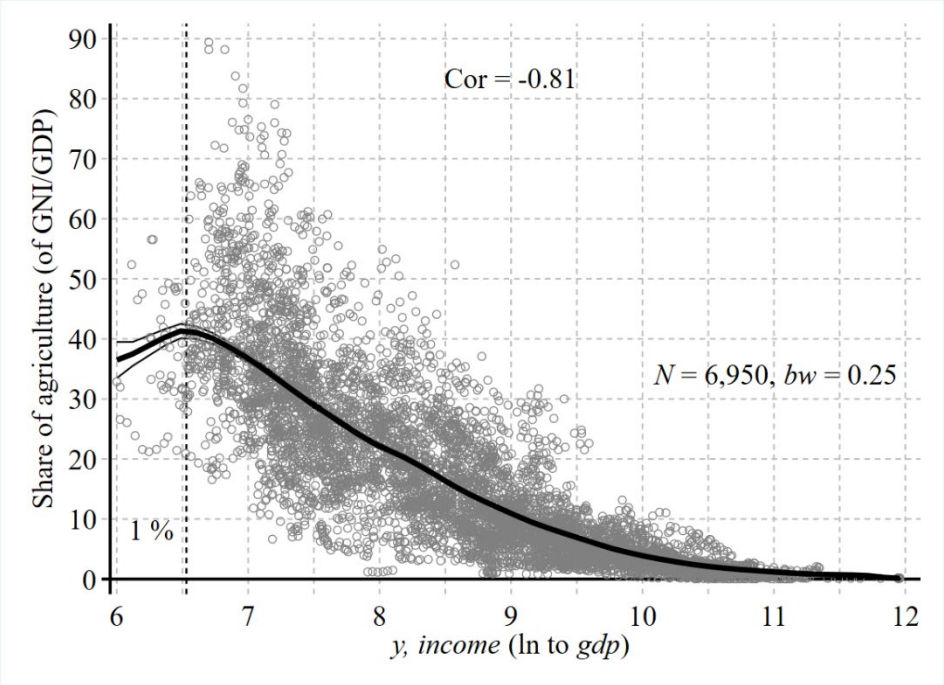
Neither the Black Death, the Reformation, or the Napoleonic wars changed society very much once they were over. The grand transition was a much deeper change. It started with the growth of industry and international trade in the UK around 1750 and soon spread across the Channel to the Low Countries. After the Napoleonic wars, it spread in larger and larger circles to affect the whole world. Today about 40 countries are fully modern, while the remaining 160 countries are spread out over the full income range, which explains why wide samples show transitions.

[12] The 'farm-boy'-soldiers provided by the feudal system were not trained soldiers. At least in Europe and Japan better trained mercenaries were available. Moneylenders provided loans to pay for such soldiers, using land as collateral. Thus, the losers in the wars often lost ownership to some of their land.

[13] It is estimated that the reformation in Denmark reduced the share of the Church in the GDP from about 12% to about 5%, and thus made the Church much weaker. The share stayed constant until the religious transition started after 1800 and caused a large additional fall; see Paldam (2023b).

Figure 5

Kernel regression for the agricultural transition in a wide data sample



Estimated as Figures 2 and 3, though the scatter is included. The data are thin below an income of 6.5, and here most of the observations are from African countries (notably Congo Kinshasa and Liberia) during periods of civil war where agriculture is difficult. This gives the strange kink at the start. However, it is of dubious significance.

4.1 The agricultural transition

One of the most well-known transitions is the agricultural transition. Figure 5 shows how it looks in all $N = 6{,}950$ observations from 1960-2018 of the shares of agriculture from the World Development Indicators that can be combined with an *income* observation. The curve generalizes to long time series. If the kink at the start is disregarded, the curve converges to 42% $\pm$ 5%. In the long time series available, the level is a bit higher, maybe 50% $\pm$ 5%.

Thus, the agricultural transition is a fall in the share of agriculture from 50% to about 3% of GDP. It has happened everywhere, and it comes about for two reasons: (1) The agricultural sector is particularly susceptible to technological progress as it produces standard goods. (2) The income elasticity for food is well below 1 (Engel's law). Thus, when income rises, the share of agriculture must fall, and with rapid technological progress, the population in agriculture falls even more. In addition, industrialization moved much of the processing of agricultural products to the new industrial sector.

It is probably uncontroversial to say that the causal direction in the agricultural transition is from income to the share of agriculture. Development does not happen because the share of agriculture declines. The share of agriculture was crucial for the strength of all

three pillars in the political structure of traditional society. In addition to the fall in the share of agriculture, many countries took the opportunity of a weakened aristocracy to make land reforms, abolishing tenure farming, so the feudal part of GDP vanished. In the process of reforms, the tithe was also abolished. It follows that the political strength of the aristocracy crumbled with modern development.

4.2 The religious transition: Religions stay, but religiosity decreases[14]

As mentioned, religions are stable. A large majority of people have the same religion as their parents and grandparents for many generations. However, the *intensity* of the religious belief – *religiosity* – falls with development.

The World Values Survey has 14 items that disregard people's religion but try to measure its importance. These items all have a negative correlation to income (in a cross-country perspective), and the items are dominated by one common factor, which is identified as religiosity. It has a correlation of –0.45 to income, and it shows that religiosity falls three times due to the transition. A long-run study of the per capita density of churches – that is a proxy for religiosity – finds that the fall is even larger in long-run time series.

In the perspective of economic growth, the key factor in the fall of religiosity is the large reduction of the share of religious knowledge in the stock of knowledge used in production. While religious knowledge stayed the same, secular knowledge increased dramatically, and led to a large education sector. The farmers, who had to pray for rain, can now drill boreholes and irrigate. The tiny church-based healthcare sector has been replaced by a large secular healthcare sector, as knowledge about diseases has greatly increased. The main causal process is once again from development to religiosity. Countries do not develop faster because religiosity falls. This is confirmed by the DP-TSIV test (discussed in section 2.3).

Thus, religion became less important. It is reflected in the large fall in the share of religious teaching as part of the curriculum in the school system, and the share of the faculty of divinity at universities in the developed world.

The ability of the Church to finance education and health vanished with the large growth of the sectors. At the same time, the ability of the state to collect taxes increased, so the state took over ownership of education and healthcare. The share of GDP controlled by the Church decreased from over 10% in traditional society to about 1-2% in modern society. Thus,

[14] The analysis of the religious transition is from Paldam and Gundlach (2013) and Paldam and Paldam (2017). A formal growth model explaining this transition is presented in Gundlach and Paldam (2012). These studies are updated in Paldam (2021). The DP-TSIV tests for causality are presented in the first and last of these sources.

the Church lost both religious and economic power. Consequently, the Church pillar in the traditional political system also crumbled – though not as fully as the feudal pillar.

4.3 Explaining the OPEC exception by the three pillars model

All the 18 OPEC countries were LDCs (less developed countries) when oil was found – most were even fully traditional societies. The oil sector in an LDC must rely on foreign technology and international experts, who rarely speak the local language. Oil production requires little labor but much capital. As oil installations are very expensive and highly explosive, they are heavily fenced. Thus, the oil sector is an enclave with few direct links to society.

The large effect is indirect. Oil produces much resource rent that is easy to tax, so the king's treasury becomes awash with funds. Consequently, the economic power of the king rises dramatically.[15] In the three pillars model, the royal pillar increases so much that the joint power of the three pillars increases. Hence, the transition comes to work in the reverse.

The big inflow of foreign exchange causes the exchange rate to fall (i.e., it revaluates), and hence the non-oil sectors lose international competitiveness. This reduces employment, but the king can afford to subsidize his supporters, and hence his supporters become more plentiful. This gives a lopsided development, and in many cases much of the population comes to rely on subsidies. A more detailed analysis of the OPEC exception is found in Paldam (2024b).

4.4 The transition period, random movements around a transition trend

Figures 2 and 3 showed how the democratic transition looks. It changes the political system from the stable traditional autocracy to stable modern democracy. During the change, it is not in equilibrium.[16] However, political systems are often in a temporary *status quo* equilibrium due to efforts of consolidation that all regimes make. So even when the transition is strongest, the average spell of regime constancy is a bit more than one decade; see Paldam (2021).

The vertical distance from the actual system to the transition path is the system ***tension***. If the tension is positive, the country has 'too much' democracy. When the system is stable and income grows, the tension decreases. If the tension is negative, the country has 'too little' democracy. When the system is stable and income grows, the tension increases.

This means that when society is hit by a triggering event, it does not return to the *ex-*

[15] This explains that when oil was found in democracies they did not turn into autocracies. With parliaments and elected governments in control of the treasury, the increased power supported democracy.

[16] Perhaps it is an equilibrium in the hypothetical sense that if development stopped at a certain income level, the political system may converge to the point of the curve corresponding to that income level.

ante equilibrium, as it has ceased to exist. It typically jumps in the direction of the tension, though jumps often overshoot the path.[17]

As already mentioned, this is the *jumps model*, where the transition path works as an attractor for jumps caused by random triggering events.

5. The modern steady state: Democracy

Section 4 explained why development causes the three pillars system to crumble. However, it does not explain the new system. Many countries go through various models, such as military rule, one party rule etc., before they settle down to democracy. However, once a country has acquired democracy, it tends to stick in wealthy countries, and after a few dozen years, it becomes stable.

If *polity* scores above 7 and polyarchy scores above 0.7 are termed 'full' democracy, 38 countries had reached this level in 2018. They have been full democracies for 49 years on average. Nineteen countries have had full democracy since the Second World War – most had reached democracy long before.

5.1 The modern system: New classes, new ideas and the new world

New Classes: Instead of agriculture, new sectors developed in trade and industry, mostly in the towns, which grew dramatically. Consequently, new classes of capitalists and workers emerged, and with some lag, a big middle class developed. It became the main recipient of the vast increase in human capital; see Paldam (2023a). To the extent the old feudal class managed to be captains of the new industrial and trading firms, they could hold on to power, but mostly they did not. The new classes wanted political representation, and as they became large and were concentrated in the towns, they could exercise considerable political pressures to obtain mass representation.

New ideas: The new classes eagerly accepted the new ideas from the (notably French) philosophers of the enlightenment about equality and religious freedom. This worked against the various versions of serfdom, causing many land reforms, the abolition of the privileges of the aristocracy and the state monopoly of the Church.

New World: The colonies of the Americas did not have an old power structure, but big landowners soon developed, and even when they did not have tenant farmers, they had slaves

[17] The coefficient to the tension variable in estimate of the direction of jumps (when they occur) is 1.5, giving a damped adjustment cycle.

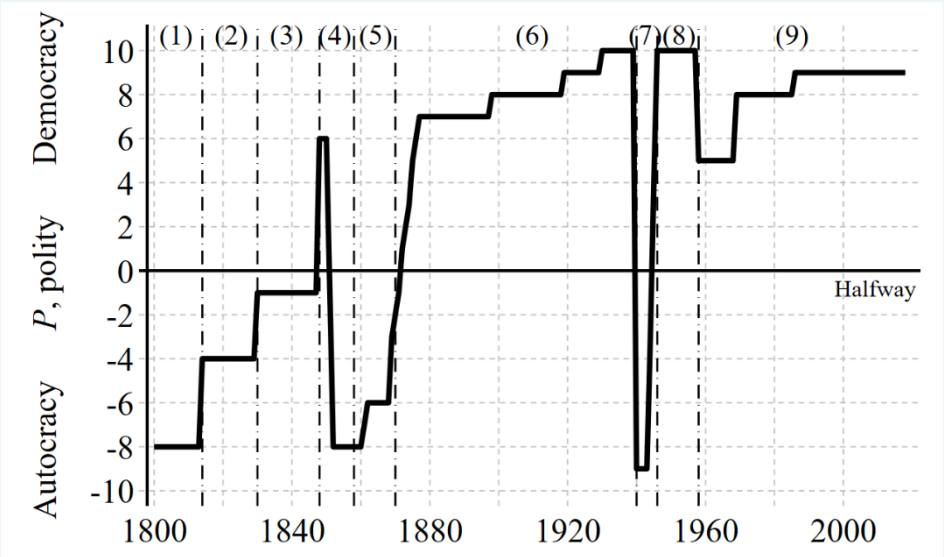
in the tropical and subtropical parts. The liberation of the colonies happened just before 1800 in the USA, and two decades later in Latin America, when the Napoleonic Wars had seriously weakened Spain and Portugal. When the new countries in the Americas started, they did (at most) have a semi-feudal structure, and in addition, the Latin American countries had strong Catholic Churches. Thus, the three pillars model is at most a two pillars model in the Americas.

6. The examples of France and Germany

This section illustrates what it means that the transition is an underlying relation overlaid by a great deal of fuzziness. In some countries, such as the UK, Japan, and Sweden, the change took the form of a handful of reforms that all made the country more democratic, but in most countries, the process was of a zigzag nature. This is the case for France and Germany as shown on Figures 6 and 7. They show typical transitions, using the polity index. The transitions are similar in the polyarchy index. Both cases are covered by a literature that easily fills a library.

Figure 6

The history of France in the polity index



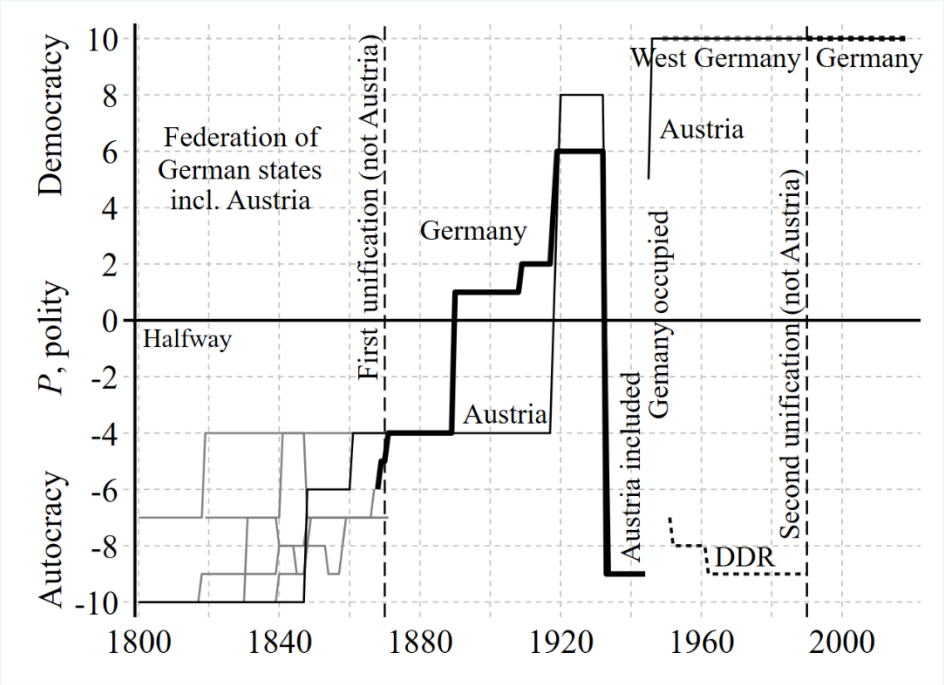
The regimes in the nine periods were: (1) Military/First Empire, (2) Burbon Kingdom, (3) July Monarchy, (4) Second Republic, (5) Second Empire, (6) Third Republic, (7) Vichy Government, (8) Fourth Republic, and (9) Fifth Republic.

France was for long a kingdom. From 1789-1799 it went through a highly volatile revolutionary period with short periods of democracy and tyranny. The monumental events

influenced later regimes in France and contributed to the zigzag movement, but it still ends as an established democracy. The graph for France shows 15 jumps, of which 12 were upward and three downward. Thus, the zigzag of the path shows a fuzzy process, with an underlying transition path. For 1820 to 2018, the correlation cor(y, P) = 0.62, as in the typical case.

Figure 7

The history of Germany and Austria in the polity index



The data starts with the German federation of independent states, through two imperial states Germany and Austria, further on to the two democracies after World War I, which became dictatorships, and the Third Reich swallowed Austria. Germany was briefly occupied after World War II. Once again, two democracies emerged, plus the DDR that imploded in 1989 and joined West Germany in 1990. Now Austria and Germany are two normal western democracies.

Germany and Austria started as a loose confederation of authoritarian kingdoms and ends as two fine democracies. Of the 35 jumps shown in Figure 7, 25 were upward and 10 were downward. Thus, the zigzag of the path shows a fuzzy process, with a strong underlying upward drift just as for France. For the period 1800 to 2018, the correlation cor(y, P) = 0.84, when DDR is disregarded. If DDR is included, the correlation falls toward the average.

7. Conclusion

The analysis uses two models: (1) The jumps model for the short to medium run, and (2) the three pillars model for the long run. (1) Is covered in previous publications, so the paper concentrates on (2). The key message is that (2) inevitably breaks down due to development. This gives the transition path.

Long run development has a skeleton of transitions of which the democratic transition is one. It has a perfect transition curve shown in Figure 2. However, all regimes try to survive, so the smooth curve is for the average country, while each country the transition takes place in bounds and jumps, as illustrated by section 6. Most jumps are in the direction of the transition path, as modeled by the *jumps model*.

The traditional political system is described by the *three pillar model* of king, feudal aristocracy, and Church. It collapsed slowly but inevitably due to the agricultural and the religious transitions. They are caused by development, so the main causal direction in the long run democratic transition is from income to the political regime.

The author believes that the above is a coherent story supported by substantial evidence. The skeleton of transitions is not the full body. There is surely a great deal that the two models do not explain, and it is possible to find exceptions. However, the democratic transition is a strong process, and if it is disregarded, there is much that needs to be explained. As many variables have transitions, it is possible to explain the transition parts of the development by many ad hoc variables, but it is important to use the most general explanation, which is the transition.

The reader may think that the story of the three pillars model and its inevitable collapse due to modern development is trivially true, but then it follows that the development of the political system is a function of economic development, which is not so trivial.

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Appendix A1: The countries in the three samples

Table A1. Part 1 of 2. Countries of Main sample

		Polity, *P*			Polyarchy, *V*		
Nr	Country	N	Span	Start	N	Span	Start
1	Afghanistan	41	69	1950	69	69	1950
2	Albania	68	69	1950	69	69	1950
3	Argentina	147	168	1851	147	168	1851
4	Armenia	28	28	1991	29	29	1990
5	Australia	118	118	1901	118	118	1901
6	Austria	146	199	1820	148	199	1820
7	Azerbaijan	28	28	1991	29	29	1990
8	Bangladesh	47	47	1972	48	48	1971
9	Barbados				58	58	1961
10	Belarus	27	28	1991	29	29	1990
11	Belgium	167	173	1846	168	173	1846
12	Benin	58	59	1960	59	59	1960
13	Bolivia	130	173	1846	130	173	1846
14	Bosnia				27	27	1992
15	Botswana	53	53	1966	53	53	1966
16	Brazil	168	169	1850	170	199	1820
17	Bulgaria	99	127	1892	100	127	1892
18	Burkina Faso	45	59	1960	59	59	1960
19	Burundi	52	56	1963	59	59	1960
20	Cabo Verde	44	44	1975	44	44	1975
21	Cambodia	52	66	1953	54	67	1952
22	Cameroon	59	59	1960	58	58	1961
23	Canada	149	149	1870	149	149	1870
24	CAR	56	59	1960	59	59	1960
25	Chad	54	59	1960	59	59	1960
26	Chile	177	201	1818	198	201	1818
27	China	88	209	1810	90	209	1810
28	Colombia	146	169	1850	151	169	1850
29	Comoros	44	44	1975	44	44	1975
30	Congo Ki	42	44	1963	59	59	1960
31	Costa Rica	98	98	1921	98	98	1921
32	Côte d'Ivoire	50	59	1960	59	59	1960
33	Croatia	28	28	1991	28	28	1991
34	Cuba	115	117	1902	117	117	1902
35	Cyprus	54	59	1960	59	59	1960
36	Czech R	88	99	1920	89	99	1920
37	Denmark	193	199	1820	194	199	1820
38	Djibouti	42	42	1977	42	42	1977
39	Dominican R	65	69	1950	69	69	1950
40	Egypt	69	69	1950	72	199	1820
41	El Salvador	90	99	1920	99	99	1920
42	Estonia	28	28	1991	29	29	1990
43	Ethiopia	66	69	1950	69	69	1950
44	Finland	102	102	1917	102	102	1917
45	France	199	199	1820	199	199	1820

		Polity, *P*			Polyarchy, *V*		
Nr	Country	N	Span	Start	N	Span	Start
46	Gambia	53	53	1965	54	54	1965
47	Georgia	28	28	1991	29	29	1990
48	Germany	167	219	1800	167	219	1800
49	Ghana	58	59	1960	59	59	1960
50	Greece	177	186	1833	184	186	1833
51	Guatemala	99	99	1920	99	99	1920
52	Guinea	61	61	1958	61	61	1958
53	Guinea-Bis.	44	45	1974	45	45	1974
54	Haiti	66	73	1946	74	74	1945
55	Honduras	81	99	1920	75	99	1920
56	Hungary	97	149	1870	98	149	1870
57	Iceland				69	69	1950
58	India	69	69	1950	71	71	1948
59	Ireland	98	98	1921	98	98	1921
60	Israel	69	69	1950	69	69	1950
61	Italy	202	204	1815	219	219	1800
62	Jamaica	60	60	1959	60	60	1959
63	Japan	134	219	1800	134	219	1800
64	Jordan	66	66	1953	66	66	1953
65	Kazakhstan	28	28	1991	28	28	1991
66	Kenya	53	56	1963	56	56	1963
67	Korea N	29	29	1990	29	29	1990
68	Korea S	71	71	1948	71	71	1948
69	Kyrgyzstan	28	28	1991	29	29	1990
70	Laos	52	64	1954	69	69	1950
71	Latvia	28	28	1991	29	29	1990
72	Lebanon	39	69	1950	69	69	1950
72	Lesotho	52	53	1966	53	53	1966
74	Liberia	56	69	1950	69	69	1950
75	Lithuania	28	28	1991	29	29	1990
76	Luxembourg	69	69	1950	69	69	1950
77	Macedonia	28	28	1991	28	28	1991
78	Madagascar	57	59	1960	59	59	1960
79	Malawi	55	55	1964	55	55	1964
80	Malaysia	62	62	1957	62	62	1957
81	Mali	57	59	1960	59	59	1960
82	Malta				69	69	1950
83	Mauritania	59	59	1960	59	59	1960
84	Mauritius	51	51	1968	51	51	1968
85	Mexico	116	169	1850	133	211	1808
86	Moldova	28	28	1991	29	29	1990
87	Mongolia	69	69	1950	69	69	1950
88	Montenegro	13	13	2006	21	21	1998
89	Morocco	66	199	1820	66	199	1820
90	Mozambique	44	44	1975	44	44	1975

Continued.

Table A1. Part 2 of 2. Countries of the Main sample

Nr	Country	Polity, *P*			Polyarchy, *V*		
		N	Span	Start	*N*	Span	Start
91	Myanmar	69	69	1950	69	69	1950
92	Namibia	29	29	1990	29	29	1990
93	Nepal	72	199	1820	72	199	1820
94	Netherlands	199	204	1815	204	204	1815
95	New Zealand	150	159	1860	150	159	1860
96	Nicaragua	95	99	1920	99	99	1920
97	Niger	59	59	1960	59	59	1960
98	Norway	185	199	1820	190	199	1820
99	Pakistan	67	69	1950	69	69	1950
100	Panama	113	113	1906	113	113	1906
101	Paraguay	80	80	1939	80	80	1939
102	Peru	195	198	1821	192	198	1821
103	Philippines	73	73	1946	73	73	1946
104	Poland	82	99	1920	82	99	1920
105	Portugal	193	219	1800	207	219	1800
106	Romania	150	155	1864	152	157	1862
107	Russia	127	134	1885	129	134	1885
108	Rwanda	58	58	1961	59	59	1960
109	Sao Tome				44	44	1975
110	Senegal	59	59	1960	59	59	1960
111	Serbia	89	149	1870	94	149	1870
112	Seychelles				43	43	1976
113	Sierra Leone	53	58	1961	59	59	1960
114	Singapore	58	60	1959	60	60	1959
115	Slovakia	26	26	1993	26	26	1993
116	Slovenia	28	28	1990	29	29	1990
117	South Africa	146	165	1854	107	119	1900
118	Spain	175	214	1805	175	214	1805
119	Sri Lanka	71	71	1948	71	71	1948
120	Sudan	61	63	1956	63	63	1956
121	Swaziland	46	46	1973	46	46	1973
122	Sweden	218	219	1800	219	219	1800
123	Switzerland	168	168	1851	168	168	1851
124	Syria	66	69	1950	69	69	1950
125	Taiwan	69	69	1950	69	69	1950
126	Tajikistan	28	28	1991	29	29	1990
127	Tanzania	58	58	1961	59	59	1960
128	Thailand	75	199	1820	75	199	1820
129	Togo	59	59	1960	59	59	1960
130	Trinidad	57	57	1962	57	57	1962
131	Tunisia	60	60	1959	63	63	1956
132	Turkey	99	199	1820	100	199	1820
133	Turkmenistan	28	28	1991	28	28	1991
134	Uganda	54	57	1962	59	59	1960
135	UK	219	219	1800	219	219	1800
136	Ukraine	28	28	1991	29	29	1990
137	Uruguay	128	189	1830	152	189	1830
138	USA	219	219	1800	219	219	1800
139	Uzbekistan	28	28	1991	29	29	1990
140	Vietnam	65	65	1954	69	69	1950
141	Yemen	60	64	1950	69	69	1950
142	Zambia	51	55	1964	55	55	1964
143	Zimbabwe	49	49	1970	49	49	1970

Table A2. The countries of the OPEC sample

Nr	Country	Polity, *P*			Polyarchy, *V*		
		N	Span	Start	*N*	Span	Start
1	Algeria	57	57	1962	57	57	1962
2	Angola	43	44	1975	44	44	1975
3	Bahrain	48	48	1971	48	48	1971
4	Congo Br	59	59	1960	59	59	1960
5	Ecuador	120	149	1870	122	149	1870
6	Equ. Guinea	51	51	1968	51	51	1968
7	Gabon	59	59	1960	59	59	1960
8	Indonesia	63	70	1949	70	70	1949
9	Iran	70	199	1820	70	106	1913
10	Iraq	62	69	1950	69	69	1950
11	Kuwait	55	56	1963	69	69	1950
12	Libya	60	60	1951	68	68	1951
13	Nigeria	58	59	1960	59	59	1960
14	Oman	69	69	1950	69	69	1950
15	Qatar	48	48	1971	48	48	1971
16	Saudi Arabia	69	69	1950	72	196	1823
17	UAE	46	48	1971	46	48	1971
18	Venezuela	189	189	1830	190	200	1819

'Span' is the difference between the start and 2018. The OPEC sample used in the calculations is limited to the period from 1960, the year OPEC started. Bahrain and Oman are in the OPEC sample. They are not OPEC members but are so near to the Arab oil countries that they follow the same pattern. Table A1 contains 143 countries, but only 137 overlap for both indices. 25 of these are western countries.

Appendix A2. Distribution Histograms: The two democracy indices and their first differences

Figure A1a. The distribution of the polity index. Observations of zero are deleted as it means that no political system operates, due to foreign occupation or civil war.

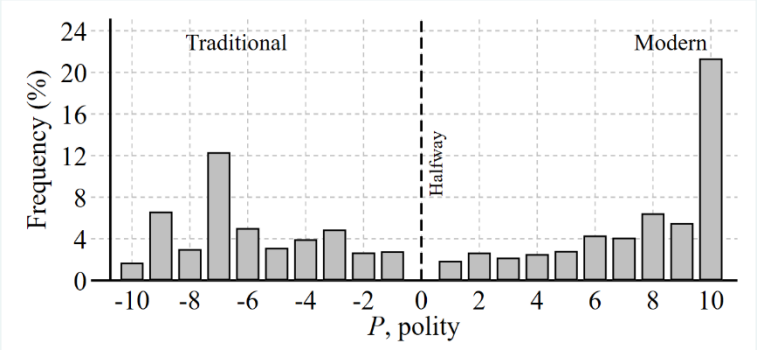

Figure A1b. The distribution of the polyarchy index

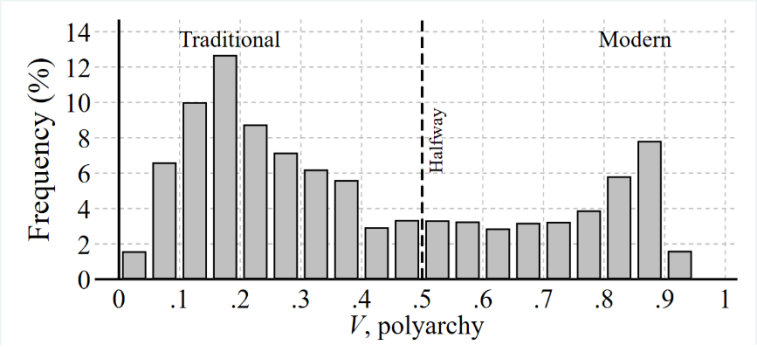

Figure A2a. The distribution of the first differences to the polity index

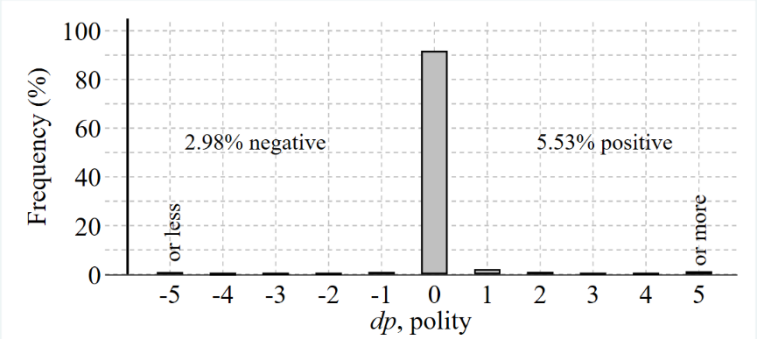

Figure Ab. The distribution of the first differences to the polyarchy index

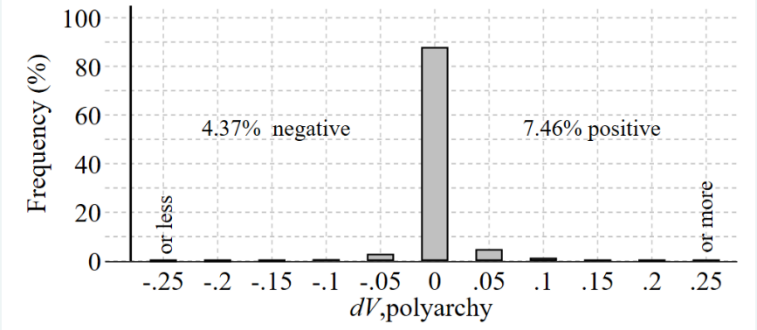

Figure A1 shows how different the two indices are, for $N = 11{,}120$. Polyarchy scores no country as a perfect democracy in the top bin, while the polity index has 22% of the observations in the top bin. However, both distributions are clearly two peaked with a low and a high peak, corresponding to the traditional and modern steady state. In addition, they give much the same transition curve as seen in Figure 2.

Figure A2 shows the first differences of the two indices, for $N = 10{,}799$. Both indices are constant in about 90% of the years, but polyarchy has many small oscillations especially in the high-income countries. If the two neighbor cells are added to the peak at zero, the two peaks raise to about 95%.