Does political instability harm development?

A comparative empirical study of the long run

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Abstract:

The paper argues that the relevant political instability is system instability, and proceeds to define two independent measures of system instability. Both are derived from the Polity index: V is the average numerical change in the index per year. Z is the fraction of years under anarchy, where the index is zero, i.e., where different groups fight for power, or during temporary foreign domination. Both indices and the growth rate are for the period from 1960 to 2016 for 166 to 156 countries. Z has a strong effect on growth, while V has a weak and insignificant effect. The weak effect of V is likely to be due a causal mechanism in each direction with different signs.

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1.   Introduction

The paper reports that countries differ greatly as regards political stability – some countries have had a perfectly stable political system, while others has seen a dramatic zigzag between democratic and authoritarian political systems. This provides adequate data to address the question: How is the relation between political instability and long-run economic development. The paper tries to isolate this relation from the relation between the stability of the economic system and development, which is only discussed briefly in the Appendix,

Many observers seem to believe that the relation between political stability and growth must be strongly negative as seen in the cases of Haiti and Argentina, with high instability and low growth.[2] However, alternative cases as Thailand and Turkey combine even greater instability and a fine economic development.[3] Thus, the strength of the relation is not obvious, and the paper finds that the relation is weak. Section 2 discusses theory and argues that the long-run macro data for political stability and growth contains several causal relations.[4] The two main ones have different signs and causal direction: They are termed the investment link and the transition link.

Section 3 defines two measures of political instability, which are both derived from the *Polity index*. Table 5 below shows that the two measures are independent.

(1) V is the average annual change of the index. V is independent of the direction of the change.

(2) Z is for the share of years where P is zero, i.e., years of anarchy and foreign intervention.

V is probably what most people have in mind when they speak about political instability. Section 3 discusses both measures and shows two main facts about V: It has a falling trend and a dramatic peak in 1989/92. Z is rather an index of civil strife as it measures the share of years with no political system, where different group, which may include foreign countries, fight for power – often violently.

The economic data used in the paper is the *cgdppc*-series for 1960-2016 from the 2018 version of the Maddison Project Database. These data are the *gdp* (GDP per capita) in real PPP prices. The (natural) logarithm to *gdp* is termed ***income***. The analysis deals with the country averages for the

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2. Lundahl and Silé (2005) gives a summary of the economic-political history of Haiti, while Tanzi (2017) covers Argentina. Note that both countries have had a rather unstable economic system.
3. The newer history of Thailand and Turkey are covered by Terwiel (2011) and Pope and Pope (2011) respectively. Note that both countries have had a stable economic system, though Turkey has experienced substantial economic fluctuations.
4. The subject of this paper was also the discussed at an IEA-conference published in Borner and Paldam (2005), see in particular the survey by Peter Bernholz, who covers the literature back to Aristoteles!

series over the full time span of 58 years to concentrate on the long run.

Section 4 brings a set of regressions analyzing the relation between average growth and political stability. While Z has a significant negative connection to the economy, it is difficult to find a significant connection from V to the economy. Finally, section 5 concludes.

2.   Two theories

Table 1 isolate what the present paper analyzes – it concentrates on the unshaded top left hand cell in the table. I think that we have enough evidence that constitutional change of governments within a democratic system is unimportant for long-run development, though there may be some little short-run cyclicality. Several theories connect political instability to development. Sections 2.1 and 2.2 discuss the two main ones. Section 2.3 looks at the relation in old countries, while section 2.4 considers new countries that used to be colonies.

Table 1. Four factors that may influence development

	Change of system	Changes within system
Political	Political system (measures V and Z)	Constitutional change of government
Economic	Economic system	Economic fluctuations

Note: A 'system' is a multidimensional concept; hence, a measure must be a weighted sum of variables covering the relevant dimensions. Such indices are always debatable especially since the de facto and de jure constitutional rules often differ. The paper use the assessment by the Polity group, see Marshal *et al.* (2016). The Fraser Institute Economic Freedom index is a similar attempt to cover the economic system, see Appendix.

2.1   The investment link: political instability $\Rightarrow$ low investments $\Rightarrow$ low growth.

The main causal link from political instability to growth follows from the strong positive relation from investment to growth; see, e.g., Barro (1991). Many studies of the investment motive, such as Borner *et al.* (1995), have found that predictability and transparency of political decisions are of great importance. Thus, one should think that Political instability was a strong impediment for investments and hence growth. It is not only researchers who has proposed this theory. One of the most thoughtful and successful practitioners of development, Lee Kuan Yew, often claimed that political stability was a key to development.[5]

The investment-link theory exists as a parallel theory for the economy. Here it is shown both for economic fluctuations and for economic system changes. Aizenman and Marion (1993) and Gavin and Hausmann (1998) show that countries with large economic fluctuations have less Growth. The Appendix compares the political stability measures with a corresponding measure of economic system stability and show that the latter has a more powerful effect on growth. We also know that

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5. Lee Kuan Yew ruled Singapore for about 45 years, where he practiced, what he claimed. Polity has been constant in Singapore at $P = -2$ since 1965 after the failed union with Malaysia.

large changes in the economic system – notably in the system of property rights – has great costs in economic development. The two changes from a capitalist/feudalist system to a socialist system and back in Russia and a dozen other countries caused a large fall in GDP. Even when the falls were only temporary, it did take more than 10 years to reach the old GDP-level. The economic system also influence the long-run growth rate, see e.g., the table of country-twins with different economic system in Paldam and Gundlach (p 81, 2008).[6]

2.2   The transition link: growth ⇒ political change

The main causal link from growth to political instability follow from the Democratic Transition. The study of economic growth has found two main steady states. The traditional steady state used an almost stable traditional technology producing a low and stable income. The modern steady state uses international technology yielding a much higher productivity and incomes. The *Grand Transition* is the change from the traditional steady state to the modern one. This process used to be simplified as a two-sector model, where the two steady states are seen as two sectors, where the modern sector gradually replaces the traditional one. During the transition there no steady state.

Growth consists of three parts: The two first are the internal growth in the two sectors, giving growth of 1-2% as the weighted sum of the two growth rates. The third part is Petty-effect of the transfer of resources from the low productivity traditional to the high productivity modern sector. It is potentially large: Imagine that it is possible to transfer 1% of the labor force per year. If the productivity gap is 5 times such a transfer will produce an extra growth of 5%. Thus, countries may potentially grow by 6-7% at the middle of the Grand Transition. This potential is hard to reach for many reasons, one of which may be the costs of the upheavals due to the transition of the political system as will be discussed.[7]

The Grand Transition consists of transitions in all parts of society. One of these is the Democratic Transition. This transition in the Polity index has been analyzed in two earlier papers in our project: (i) Gundlach and Paldam (2009) and (ii) Paldam and Gundlach (2018). Both papers show that the system is stable at –3 to –4 in traditional society and moves to +9 to +10 in modern society,

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6. The table compares the development of closely related countries at both side of the iron curtain. It was inspired by Acemoglu *et al.* (2005), which argued for 'the primacy of institutions'. Even when 'institutions' is a wooly concept the theory seems to include both the political and economic system.
7. Gundlach and Paldam (2018) find that growth in the average country does peak midways in the transition, but the excess growth is only 1-1½. Another reason why the growth potential growth is hard to reach is that it requires markets for the goods produced by the modern sector, so that it can expand to absorb the excess labor in the traditional sector. This is why an export-led transition appears to be the most successful one.

with a neat average path in between. The variation around the path is large except at the two ends.

In addition, paper (i) reported a long-run causality test on cross-country data showing that the main causal direction is income $\Rightarrow$ Polity, while paper (ii) presented a mechanism for the short run giving the transition outcome: The transition path is an attractor for the larger system changes (jumps) that happens randomly in the perspective of economic development. In average the jumps overshoots that transition path by about 50%. Hence, they lead to future, but gradually smaller jumps.

The transition includes a complete change of the power structure of the society, and hence of the political system. Two main groups of examples will show the range of possibilities. The first group is countries that has remained independent for a long time. The second are new countries, i.e., countries that has been colonies and reappear as a new and different country.

The Grand Transition normally takes a couple of centuries, and the paper covers only half a century. It means that the data cover countries that are in the early stages, others that are midways and hence unstable, and still others that have passed the transition and has reached stability. How much it matters requires a short digression looking at the two dozen countries where the data covers more than 200 years.

2.3   The Democratic Transition in old kingdoms

The *P*-data starts in 1800, where they cover 23 of the present counties, including Germany that consisted of a handful of independent states before 1871.[8] The USA had just left colonial status in year 1800, but the remaining 22 countries all had old royal systems with an average *P*-level of –8.[9] The king was from a 'royal' family. He ruled in alliance with the national 'church', and a 'noble' class of large landowners. Thus, it was a feudal-religious system headed by a king. Such systems had typically been very durable, though crises erupted from time to time.[10] The Grand Transition undermines two of the three pillars in this power structure:

(a) The Agricultural Transition reduces the agricultural sector from 40-50% of GDP to well below 5%, greatly weakening the power of landowners. New sectors of manufacturing and services grow to produce both capitalists, a large labor class, and eventually an even larger middle class that is the main recipient of the large increase in human capital. The new classes want political influence.

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8. Two of the countries in this group – Korea and Morocco – did have a period of about 40 years as colonies in the period since 1800, so maybe they rather belongs in the group discussed in the next section.

9 This is 4 points below the average of the poorest countries today, so nearly all countries have started on the transition.

10. Three strong players is no recipe for stability in the theory of coalitions, see e.g. Schofield (1993). It appears that the king often managed to be stronger than were the two other players, but sometimes the nobility or the church became so strong that the power balance shifted giving a crisis, but the system as such typically survived a handful of centuries.

(b) The Religious Transition reduces religiosity by 60-70%.[11] This reduces the share of the economy controlled by the 'church' to less than one third, and caused the power of organization of the 'church' to become much weaker. The reduction in religiosity also seems to reduce the amount of religious fundamentalism and hereby the number of democratically problematic people with supreme values in the sense of Bernholz (2017).

The result of all these changes proves to be a democratic society. If the king manages to remain, he (she) turns into a constitutional figurehead. The democratic transition is never smooth: Old players try to hold on to power, and the new classes grab power through demonstrations/-riots/revolutions, where the first mover runs a large risk. Thus, he needs to hide in a crowd so these processes takes place in large steps that often overshoot the transition path, resulting in cyclical jumps for some time before the system settles down; see Paldam and Gundlach (2018). Often there are periods of military rule in between.

This development is illustrated by Thailand. By the *V*-measure it is the most unstable country, see Table 2 below. For the 58 years covered the numerical changes adds to 98 points. This corresponds to five changes from the top to the bottom of the scale.

Figure 1. The history of Thailand over two centuries as told by income and Polity
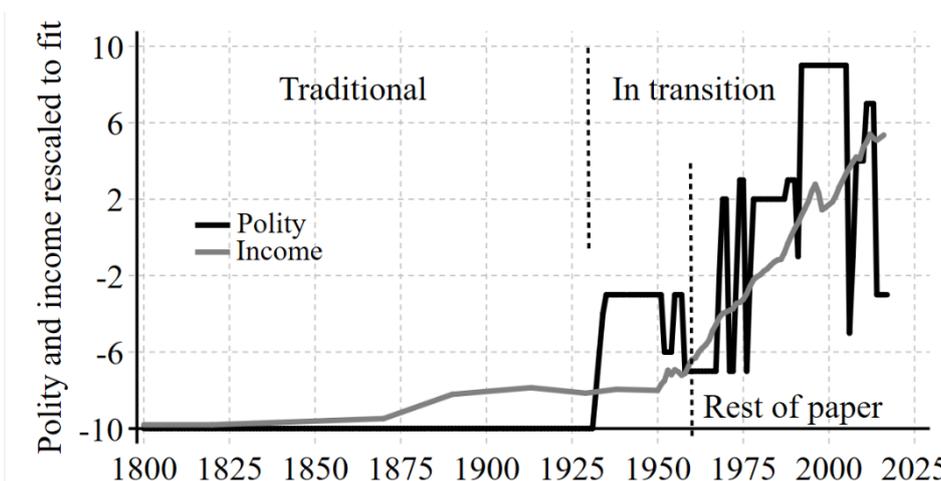
Note: Income is the logarithm to real GDP per capita in the Maddison project database. Income is rescaled by multiplying by 5 and deducing 42.5. See further Terwiel (2011) on the history of Thailand. The rest of the paper covers the period after 1960 only.

Thailand has *P*-scores since 1800 and the Maddison GDP data exists for as many years, though they

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11. See Paldam and Gundlach (2012) and Paldam and Paldam (2017) on the religious transition.

are thin before 1950. Figure 1 looks at the whole 217 years and tell the transition story. Until the 1930s Thailand was in the traditional steady state with a stable absolute kingdom and a stable low income. The transition became strong around 1950. Since then Thailand has been unusually unstable politically, but P does have a rising trend, and in addition a stable real growth per capita of no less than 4½% pa. If economic growth continues, Thailand should become a stable democracy within the next half century. The main difference between Thailand and the typical western country is that the transition in the west started earlier and was slower. Consequently, the west experienced the zigzag of the democratic transition earlier and less compressed, though it was dramatic in Germany and the South European countries.

2.4 The democratic transition in ex-colonies

Many countries became colonies during the 19th century, when they were poor traditional kingdoms. The colonial period weakened the old order, and often changed the borders, so that several old kingdoms came to be within the new country. When the colonial administrators left, the old political structure had little power and prestige left. Hence, in most cases the only powerful institution was the army. The newly independent country typically had a nice democratic constitution, but it rarely lasted.

This is most visible in the countries of Sub-Saharan Africa, where half of the countries became independent in 1960 and most of the remaining countries in the next 10 to 15 years. Figure 2 shows that the average country saw a drop in Polity by no less than seven Polity points in the Post-colonial period. The figure also shows that the post-socialist peak from Figure 2 was large in Africa.

Figure 2. The path of Polity in Sub-Saharan Africa

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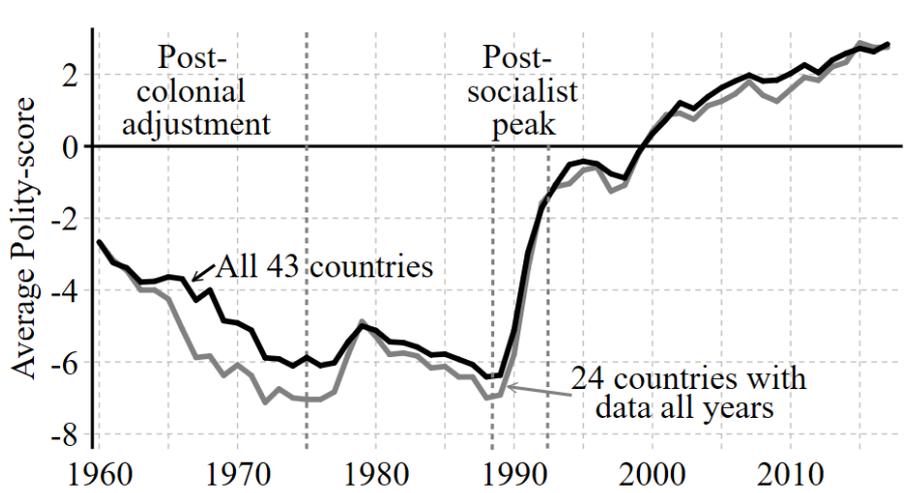
Another group of ex-colonies is the Arab group. It had been parts of the Arab Empire and later the Ottoman Empire until it was taken over by various European countries. Today half of the countries are oil exporters. This generate a large flow of resource rent where most come under control of the traditional rulers. This makes the political transition very different. Instead of a convergence to Democracy, it gives convergence to even more autocracy (i.e. to $P = -10$); see Paldam and Gundlach (2008).

Note that both the story of the old kingdoms and the new countries suggest that the causality is from economic development to political system instability. However, the instability may then harm development. This may be an important reason, why countries rarely mange to reach the potential for high growth during the transition.

3.   Measures of system stability

Section 3.1 covers the definitions of the instability measures, while section 3.2 looks at the distribution of the data, and section 3.3 considers the path of the *V*-data over time. A key observation as regards the Polity index is that it is constant most years, indicating that political systems quickly develop status quo equilibria. However, from time to time, they change, and some of the changes are large. Thus, in order to measure the system stability on has to consider averages over long periods.

3.1   The measures: V, V2 and Z

The Polity index, *P*, is defined in Marshall et al. (2016) and available from the home page give in the references. The *P*-data starts in 1800 or the year the country became independent. In cases where a country breaks up, I start the data for the new countries with the last available observation from the old country.[12] The measures are defined for country *i* from year *t*1 to year *t*2:

(1a) $V = \sum_{t=t1}^{t2} \left| \Delta P_{it} \right| / (t2 - t1)$ (1b) $V2 = \sqrt{\sum_{t=t1}^{t2} \Delta P_{it}^2} / (t2 - t1)$

(2)   ***Z*** is the share of years with data, where Polity is zero

The two *V*s are probably what most observers have in mind when speaking about instability. The *V*s are, of course, the same measure using a linear and a quadratic metric. They give similar results throughout. Thus, I delete (1b) in most of the paper.

The period covered is 1960 to 2017, where data are available for 167 countries. Of these countries 21 have perfect stability for all years covered. They are 15 Western countries, Japan, and Costa Rica with *P* = 10, and 3 Arab oil-countries with *P* = −10. Namibia has with *P* = 6. Some of the countries emerging from the USSR and Yugoslavia have been stable after the jump in the initial year. It is Latvia with *P* = 8, Lithuania and Slovenia with *P* =10, and finally Uzbekistan where *P* = − 9.

To get a first impression of the measures, Table 2 lists the 10 countries with the highest scores by the three measures. While the two *V*s have a 50% overlap, there is no overlapping of *Z* and *V*, and just one of *Z* and *V2*. The countries with high Z-scores have all had a violent history. A first indication that *V* is better than *V2* is that Slovenia and Lithuania are found in the column under *V2* due to the one change in the initial year, but not under *V* in the table.

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12. *P* uses three *standardized authority scores*: *Anarchy* −77 that are set to 0 in Polity2, *Regime transitions* −88 that are interpolated in Polity2. We keep the Polity2 coding. Temporary *foreign interventions* −66 that are blanks in Polity2. We set them as zero, as they, in most cases, cause a regime change. It is often the announced purpose of the intervention.

Table 2. The 10 most unstable countries by the three measures

V		V2		Z	
Ghana	1.123	Somalia	0.498	Côte D'Ivoire	0.155
Sudan	1.125	Lithuania	0.500	El Salvador	0.155
Korea S	1.138	Sudan	0.504	Congo Ki	0.200
Peru	1.172	Thailand	0.530	Cambodia	0.207
Turkey	1.241	Slovenia	0.536	Laos	0.207
Armenia	1.250	Haiti	0.537	Liberia	0.224
Pakistan	1.286	Bangladesh	0.554	Burkina Faso	0.241
Bangladesh	1.326	Belarus	0.659	Somalia	0.362
Haiti	1.490	Serbia	0.699	Afghanistan	0.483
Thailand	1.690	Armenia	0.724	Lebanon	0.517

Note: Countries shaded in gray appear on two lists. The V- and Z-column have no overlap.

3.2 *Distributions of the Z and the V-scores*

The histograms of Figure 3 show that the two instability indicators have different distributions: The *V* has a distribution that is moderately skew – it looks lognormal with kurtosis 1.2 – and the two utmost observations are not real outliers. *Z* has a much skewer distribution (kurtosis is 21). More than half of the *Z*s are zero, so the explanatory power of the *Z*-variable hinges upon few countries, and the utmost observations are indeed outliers. They are singled out in Table 6 below, analyzing the explanatory power of *Z* on growth.

The countries listed in Table 2 suggest why *Z* works better. Both Afghanistan and Lebanon have had long periods of civil war. Haiti and Thailand have been rather peaceful, except for coups and countercoups, but while Thailand has a fine growth record Haiti is one of the 11 countries where the average growth rate is negative.

Figure 3a. Distribution of the *V*s   Figure 3b. Distribution of the *Z*s
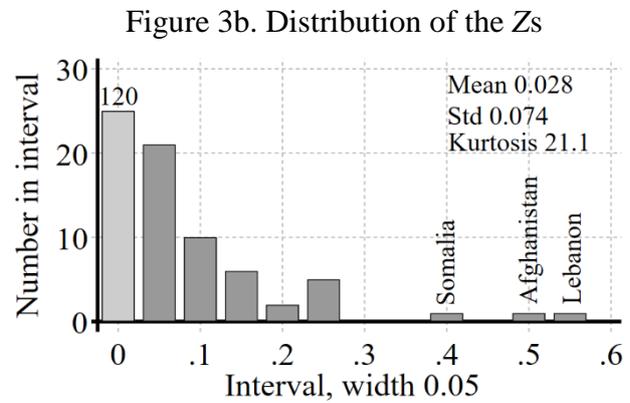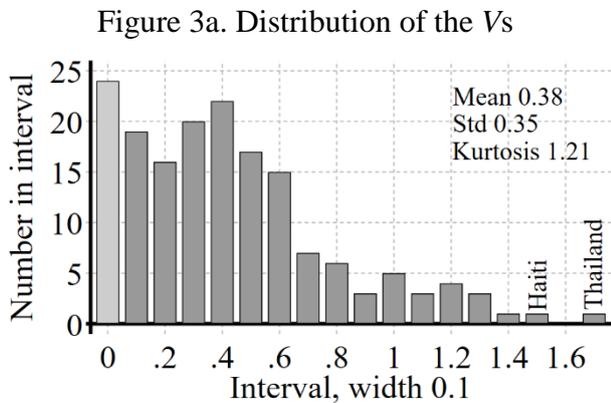

Note: Both graphs cover 167 observations. The light gray bars are for observations at zero. $Z = 0$ in 120 countries, so the light gray bar is compressed on Figure 3b. Somalia has no gdp data in our dataset, so it is not included in section 4.

3.3   The path over time

The *V*-score can be averaged across countries every year. This produces the yearly measure of system instability depicted on Figure 4 and analyzed by the regressions in Table 3. The analysis shows a clear downward trend and a large peak rising no less than 1.5 polity points above the trend, in connection with the demise of socialism and the dissolution of two federations of the USSR and Yugoslavia. Even when the new countries from these two ex-federations are deleted, the peak still rises 0.9 points above the trend. The regressions of Table 3 show that the trend and the peak do not interact. We are dealing with two independent phenomena.

The post-socialist peak of 1989 to 92 was a unique set of events that has the character of a 'ketchup effect': After a long time, where socialism did not live up to its promise, it finally broke, and this created a large demonstration effect.[13] First, the Communist Party collapsed, then the whole regime of the USSR, and the Russian superpower. It also caused a collapse of socialism in many other counties, including the Yugoslavian Federation; see also Figure 2 above on the path of the *P*-index in sub-Saharan Africa. The large shock to the political system caused a large chock in the economic system and a deep crisis lasting 5-10 years throughout the ex-socialist countries. This whole process caused most state owned enterprises to close or drastically downsize, and it had large social consequences, but the process was marred by little violence.

Figure 4. Average *V*s for all years; see also Table 3
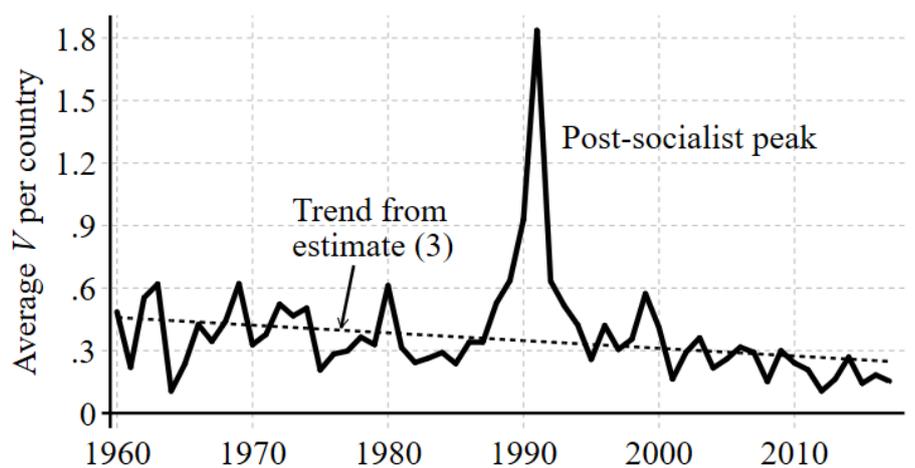
Note: The data include 21 countries that came into being in 1990 after the dissolution of the USSR and Yugoslavia. They all started with a large change. If these countries are deleted the curve remains very similar, but the peak goes to 1.2 only.

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13. Afterwards many have explained these events, but very few predicted them, and those lonely few were not believed.

Table 3. *V*-annual explained by trends and the post socialist peak, 1988-93

N = 58	(1)	(2)	(3)	(4)
Decade	-0.033 (-1.7)	**-0.037** (-3.8)	**-0.037** (-4.0)	
1988			0.201 (1.7)	0.202 (1.5)
1989		**0.306** (2.5)	**0.313** (2.7)	**0.311** (2.3)
1990		**0.601** (4.9)	**0.609** (5.2)	**0.602** (4.5)
1991		**1.513** (12.4)	**1.521** (12.9)	**1.511** (11.2)
1992		**0.314** (2.6)	**0.322** (2.7)	**0.308** (2.3)
1993			0.208 (1.8)	0.190 (1.4)
Constant	6.929 (1.8)	**7.609** (4.0)	**7.711** (4.2)	0.326 (17.6)
R²	0.048	0.791	0.813	0.752
R² adj	0.031	0.771	0.787	0.722

(The year rows 1988–1993 are labelled "Dummy for year".)

Note: Coefficients are bolded if they are significant at the 5% level.

The trend gives a change of 0.22 *V*-points over the 58 years. That amounts to almost half of the value at the start of the period. Section 3.1 argues that this trend is due to the increasing income in the period that pushes countries along the Democratic Transition. Paldam and Gundlach (2018) show that political systems stabilize in modern countries. Income data are available for 146 countries with *P*-data for the period analyzed. The average growth rate for the 146 countries is 2.24. It amounts to an increase in real GDP per capita of 3.86 times. Consequently, a substantial group of countries has reached the income level that gives a more stable political system.

Figure 5a. Growth of the 10 decades of countries   Figure 5b. Change of ranks of countries
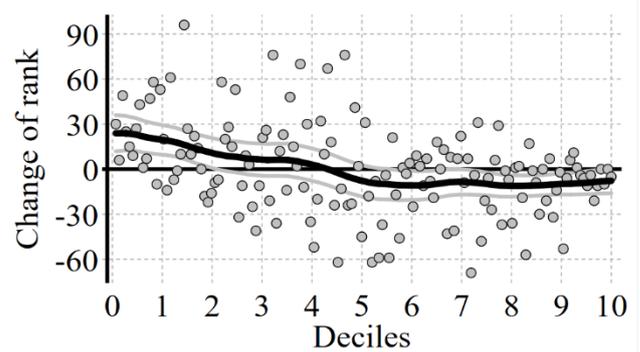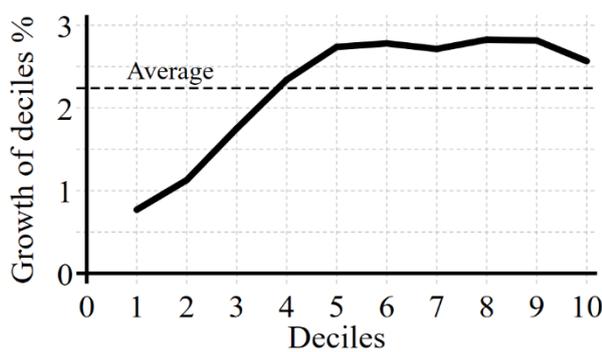
Note: The 146 countries are ranked by income at the start and end. The ranked countries are divided in deciles with about 14.6 (rounded) countries in each. Thus, the groups have different members. Figure 5b contains a kernel regression, estimated with Epanechnikov's kernel and bandwidth 10. The two gray lines are 95% confidence intervals.

Figure 5a shows how the incomes of countries change. The curve is a crude version of the hump-shaped transition curve for the growth rate reported in Gundlach and Paldam (2018). Point 1 to the

left on the figure shows how the poorest 15 countries in 2016 did relatively to the 15 poorest countries in 1960. Point 10 to the left on the figure shows how the richest 15 countries in 2016 did relatively to the 15 richest countries in 1960.

Figure 5b shows how much countries move relatively: The poorest country in 1960 was Lesotho, which has moved no less than 30 places up, from group 1 to group 3 of the countries. The second poorest country moves only 6 places in the rank so it remains within the poorest group, etc. The figure shows that many countries move a great deal. The highest jump in rank is Equatorial Guinea, which found a lot of oil, and jumped from decile 2 to 7.

The slope on Figure 5b is negative. This finding is partly an artifact due to the truncations at the two ends. If a country is the poorest, it cannot fall any further in the rank. Only one of the countries in the bottom tenth in 1960 falls in ranks, all the others rise. The truncation still affect the countries in the second lowest intervals. The truncation problem also affects the top, i.e., deciles 9 and 10. Nearly all countries in decile 10 remain in that decile. Even if we disregard the two utmost deciles in both ends due to the truncation problem there is still a small negative slope on the kernel, which is just significant. Thus, we do find a weak convergence for these countries. This also helps explaining the trend toward stability of the political system observed on Figure 4.

3.4   Inertia: Are the same countries unstable?

If we disregard the post-socialist peak, we can compare *V* for 142 countries for 1960-1988 and for 1993-2017. Here the correlation is 0.162. For a one sided test this is significant at the 5% level, but only just so. Thus, we know that political instability has some inertia, but it is not strong. Table 4 confirms this picture. If a country is unstable in one decade it is still a bit more unstable next decade, but not longer than that.

Table 4. Correlation matrix for the V-score per decade

	1960s	1970s	1980s	1990s	2000s	2010s
1960s	1	**0.19**	0.06	0.01	-0.00	-0.03
1970s	**0.21**	1	**0.26**	0.06	**0.19**	0.11
1980s	0.06	**0.32**	1	-0.08	-0.01	0.07
1990s	0.02	0.00	-0.04	1	**0.17**	0.03
2000s	-0.01	**0.20**	0.01	**0.28**	1	**0.21**
2010s	-0.02	0.14	0.06	0.05	0.15	1

Note: The correlations above the diagonal are for as many of the 166 countries as possible. The correlations below the diagonal are for the 104 countries with data all years. The lack of correlation between the two middle decades is due to the post-socialist peak.

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4. Does political system instability explain growth?

This section reports correlations and regressions analyzing the relation between growth and political stability. While the *Z*-variable is always significant and gives a large negative effect, the *V*-variable remains insignificant throughout, though is does give a nicely stable negative effect. Section 4.1 brings correlations. Section 4.2 compares the *Z* and *V* measures, while section 4.3 looks at the effect of the number of observations, and finally section 4.4 checks if the results differ by country group.

4.1 Basic correlations

For 156 of the countries we have the average growth rate from the Maddison project.[14] Table 5 shows the correlation between the growth rate and the three instability measures. It also shows the correlation between the measures. The table uses as many observations as are available between 1960 and 2017. The table has 2x2 parts. The left hand side of Tables 4a and 4c is from all countries, while the right hand side of Tables 4b and 4d is from the countries, where the data are full for all 58 years. The top panel of Tables 4a and 4b includes all available countries, while the bottom panel of Tables 4c and 4d delete the countries where $Z = V = V2 = 0$, which are mainly western countries.

Table 5. Cross-country correlations

Table 5a. All countries

$N = 156$	Growth	Z	V	V2
Growth	1	-0.27	-0.14	-0.12
Z		1	0.10	0.09
V			1	0.90
V2				1

Table 5b. Countries with 58 obs.

$N = 104$	Growth	Z	V	V2
Growth	1	-0.36	-0.11	-0.10
Z		1	0.08	0.13
V			1	0.94
V2				1

Table 5c. As 5a, stable countries deleted

$N = 135$	Growth	Z	V	V2
Growth	1	-0.28	-0.13	-0.10
Z		1	0.04	0.02
V			1	0.88
V2				1

Table 5d. As 5b, stable countries deleted

$N = 85$	Growth	Z	V	V2
Growth	1	-0.34	-0.07	-0.06
Z		1	0.01	0.04
V			1	0.93
V2				1

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14. The overlapping income/Polity data are quite thin for ten of the countries.

The table gives four results: (1) the pattern in the four sections of the table are quite similar. (2) The top row in the table gives the correlations to the growth rate. They are all negative, as they should be, but they are small. (3) The largest (numerically) is always the correlation to Z and then follows V and finally $V2$. (4) The two Vs have a correlation of about 0.9. Based on the results until now we omit the reporting of the results using $V2$.

4.2 Growth and the two instability measures

Table 6 shows (once again) that the stability variables have a rather moderate explanatory power, that comes mainly from the Z-variable. It confirms that Z and V have so little collinearity that they can be used together. They explains 9% of the variation, i.e., $R^2 \approx 0.09$. Afghanistan and Lebanon are the two outliers for the Z-variable on Figure 3b – they are singled out with a binary dummy variable. It is reassuring that they only affect the significance of the Z-variable marginally.

Table 6. Explaining growth by the two instability measures

$N = 156$	(1)	(2)	(3)	(4)
Z	**-5.996** (-3.5)		**-5.760** (-3.4)	**-7.466** (-2.8)
V		-0.617 (-1.7)	-0.506 (-1.5)	-0.447 (-1.3)
Afghanistan				0.724 (0.4)
Lebanon				2.069 (1.0)
Cons	**2.247** (17.3)	**2.327** (12.5)	**2.438** (13.3)	**2.442** (13.3)
R²	0.075	0.019	0.088	0.094
R² adj	0.069	0.013	0.076	0.070

Note: Parenthesis hold t-ratios. Bolded coefficient estimates are significant at the 5% level.

To assess the size of the two coefficients note that a value of $Z = 1$ means that a country has anarchy every year. That would give 6 percentage points less growth than the average of 2.24%, i.e., a negative growth of about 4%. This seems to tally well with the experiences of countries like Congo (Ki) and the Central African Republic. A value of $V = 1$ means that P changes by 1 point on average every year. That should give about 0.5 percentage points less growth. However, this result is insignificant.

4.3 The length of the country-sample

Some countries have less than 58 observations, as the country were dependent. However, interruptions due to a short foreign domination are counted as 0 like anarchy. This is e.g. the case in South Vietnam and Iraq during the periods of invasions by coalitions dominated by the USA.

Table 7. Explaining growth – does the number of observations matter?

N = 156	(5)	(6)	(7)
Z	**-6.390** (-3.8)	**-5.021** (-2.9)	-96.755 (-1.6)
V	-0.422 (-1.2)	-0.424 (-1.2)	-0.322 (-0.9)
Potential	**0.024** (2.1)		1.584 (1.6)
Count		**0.024** (2.1)	-1.564 (-1.5)
Cons	**1.181** (1.9)	**1.188** (1.9)	**1.333** (2.1)
R^2	0.114	0.114	0.128
R^2 adj	0.097	0.096	0.104

Note: See Table 5. The gray shading indicate that the estimate is meaningless due to multicollinearty, as Z = (Potential – Count)/Potential

The length of the period is calculated in two ways. *Potential* is the number of years where an observation exists, while *Count* disregards the zeros. The effect is the same, and it does not influence the effects of *Z* and *V* very much.

4.4   Some country groups

Table 8 looks at the effects of singling out special country groups, by a binary dummy for group members. These dummies obtain the expected signs, but they do not become significant. The Arab group of countries is the big exception to the Democratic Transition and they do have less growth. The group of ex-communist countries also has less growth, but it is a small effect. Finally, the western group of countries has a bit higher growth. The important finding is that the inclusion of these dummies does not matter for the effect of the two instability variables.

Table 8. Explaining growth – does the country group matter?

N = 156	(8)	(9)	(10)	(11)	(12)
Z	**-5.331** (-3.1)	**-5.791** (-3.4)	**-5.524** (-3.2)	**-5.228** (-3.0)	
V	-0.620 (-1.8)	-0.503 (-1.5)	-0.357 (-1.0)	-0.491 (-1.3)	
Arab	-0.608 (-1.4)			-0.537 (-1.2)	-0.511 (-1.2)
Ex-com.		-0.035 (-0.1)		-0.029 (-0.1)	0.154 (0.5)
West			0.437 (1.1)	0.329 (0.8)	**0.718** (1.9)
Cons	**2.529** (13.1)	**2.444** (12.8)	**2.315** (10.9)	**2.430** (9.8)	**2.011** (12.3)
R^2	0.100	0.088	0.096	0.105	0.038
R^2 adj	0.082	0.070	0.078	0.075	0.019

Note: See Table 5.

5.   Conclusions

This paper has looked at two independent measures for the stability of political systems:

The *Z*-variable is the share of years with anarchy. Periods with anarchy are normally due to civil violence, where different groups fight for power. This is strongly detrimental to business. It is not surprising that this has a large negative effect on economic growth. If a country has anarchy in 15% of the time, it costs one percentage point of growth. If there is a government crisis so that it takes some time (even some years) to form a new government, it is not anarchy in the index, and it is well known that otherwise stable countries can stay without government for some time with no ill effects.

The *V*-variable measures the amount of regime changes. I think that *V* is what most people see as political system instability. The *V*-variable remains insignificant, even if it is consistently negative around –0.5.

The paper argues that the main reason why the *V*-variable fails to obtain significance is that two main links between the two variables have the reverse signs: (i) The causality from political stability to growth operates via investments, so that instability $\Rightarrow$ lower investments $\Rightarrow$ lower growth. Thus, the relation should be negative. (ii) The causality from high growth to instability, is that high growth gives a faster transition and hence – per time unit – more political system changes. Thus, the relation should be positive. The negative sign on the effect suggests that (i) is the stronger effect, but then (ii) is sufficiently strong to prevent significance.

References:

Acemoglu, D., Johnson, S., Robinson, J.A., 2005. Institutions as a fundamental cause of long-run growth. Cpt 6, 385-472 in Aghion, P., Durlauf, S.N., eds. *Handbook of Economic Growth, Vol 1A*. North-Holland, Amsterdam

Aizenman, J., Marion, N., 1993. Policy uncertainty, persistence, and economic growth. *Review of International Economics* 1, 145-63

Barro R.J., 1991. Economic growth in a cross section of countries. *Quarterly Journal of Economics* 106, 407-43

Bernholz, P., 1998. Causes of change in political-economic regimes. Chpt. 4, 74-96 in Borner and Paldam (1998)

Bernholz, P., 2017. *Totalitarianism, terrorism and supreme values: History and theory*. Springer, Heidelberg

Borner, S., Brunetti, A., Weder, B., 1995. *Political credibility and economic development.* Macmillan, London

Borner, S., Paldam, M., eds., 1998. *The political dimensions of economic growth*. Macmillan, London and New York

Gavin, M., Hausmann, R., 1998. Macroeconomic volatility and economic development. Chpt. 4, 97-116 in Borner and Paldam (1998)

Gundlach, E., Paldam, M., 2009. A farewell to critical junctures. Sorting out the long-run causality of income and democracy. *European Journal of Political Economy* 25, 340-54

Gundlach, E., Paldam, M., 2018. The transition in the growth rate. Pt. WP at URL: http://martin.paldam.dk/Papers/GT-Main/11a-Hump.pdf

Lundahl, M., Silé, R., 2005. Haiti: nothing but failure. Chpt 14, pp 272-301 in Lundahl, M., Wyzan, M.L., eds., 2005. *The political economy of reform failure*. Routledge, London

Marshall, M.G., Gurr, T.R., Jaggers, K., 2016. *Polity IV project. Users' manual*. University Center for Systemic Peace. See Polity index for home page

Paldam, E., Paldam, M., 2017. The political economy of churches in Denmark, 1300-2015. *Public Choice* 172, 443-63

Paldam, M., Gundlach, E., 2008. Two Views on Institutions and Development: The Grand Transition vs the Primacy of Institutions. *Kyklos* 61, 65-100

Paldam, M., Gundlach, E., 2013. The religious transition. A long-run perspective. *Public Choice* 156, 105-123, 2013

Paldam, M., Gundlach, E., 2018. Jumps into democracy. Integrating the short and long run in the Democratic Transition. *Kyklos* 71, 456-81

Polity index: URL: http://www.systemicpeace.org/polityproject.html. See also Marshall *et al.* (2016)

Pope, H., Pope, N., 2011 (3rd ed.). *Turkey unveiled: A history of modern Turkey*. Overlook Duckworth, New York and London

Schofield, N., 1993. Political competition and multiparty coalition governments. *European Journal of Political Research* 23, 1-33

Tanzi, V., 2018. *Argentina, from Peron to Macri: An economic chronicle.* Jorge Pinto Books

Terwiel, B.J., 2011. *Thailand's political history. From the 13th century to recent times.* 2nd ed., River Books, Bangkok

Appendix: Economic and political system indices compared

Economic systems are also multidimensional, and an analysis hence need an index that weight together these dimensions. The largest attempt to do this is the Fraser Index of Economic Freedom. It characterize an economic system on a scale from 1 to 10, by the amount of economic freedom that is defined as the freedom to run a private business. Thus, the country scores 1 if it is impossible for an private individual to run a lawful business, while 10 is full freedom, where the only state interference in business is to keep law and order. As seen from Table A1 the scale use only 6.1 from top to bottom and if the 10 most extreme are deleted the index has a range of only 3.4 of the possible 9 points. In the Polity index the full range from -10 to 10 is used.

Table A1. Comparing Fraser and Polity for 2016. The most extreme countries

Fraser Index of Economic Freedom						Polity index (as discussed in main text)					
Least freedom			Most freedom			Most authoritarian			Most democratic		
Nr	Countries	F	Nr	Countries	F	Nr	Countries	P	Nr	Countries	P
1	Venezuela	2.9	153	Canada	8.0	1	Bahrain	-10	158	Portugal	10
2	Libya	4.7	154	UK	8.0	2	Korea N	-10	159	Slovak R	10
3	Argentina	4.8	155	Mauritius	8.0	3	Qatar	-10	160	Slovenia	10
4	Algeria	5.0	156	Georgia	8.0	4	Saudi Arabia	-10	161	Spain	10
5	Congo Br	5.0	157	USA	8.0	5	Swaziland	-9	162	Sweden	10
6	Syria	5.0	158	Ireland	8.1	6	Syria	-9	163	Switzerland	10
7	CAR	5.1	159	Switzerland	8.4	7	Uzbekistan	-9	164	Taiwan	10
8	Angola	5.2	160	New Zealand	8.5	8	Oman	-8	165	Trinidad	10
9	Guinea-Biss.	5.3	161	Singapore	8.8	9	Turkmenistan	-8	166	UK	10
10	Sudan	5.4	162	Hong Kong	9.0	10	UAE	-8	167	Uruguay	10

Note: Polity has 23 more countries with the score 10 in 2016. They are Australia, Austria, Canada, Cape Verde, Chile, Costa Rica, Cyprus, Denmark, Finland, Germany, Greece, Hungary, Ireland, Italy, Japan, Lithuania, Luxembourg, Mauritius, Mongolia, Netherlands, New Zealand, Norway, Poland. The reader may wonder why Hungary and Poland has 10 while France are at 9 and the USA at 8. The countries with gray shading appears at both sides of the table.
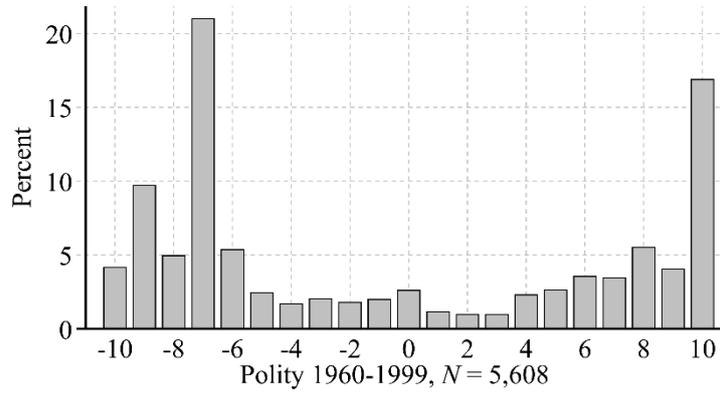
Table A2. Comparing Fraser and Polity. Descriptive statistics

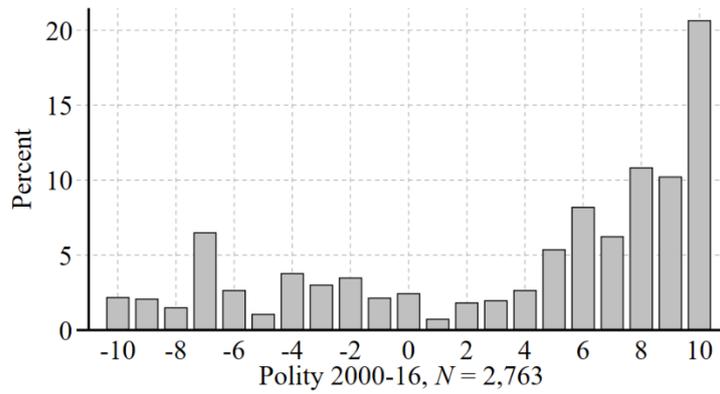|	Fraser Index		Polity Index	
	All	2000-16	All	2000-16
Count	3,003	2,427	8,536	2,763
Average	6.52	6.74	0.92	3.73
Median	6.68	6.87	2	6
St. dev.	1.13	0.95	7.42	6.36
Kurtosis	0.42	0.65	-1.68	-0.86
Max	9.19	9.19	10	10
Min	1.97	2.88	-10	-10
Range	7.22	6.31	20	20

Note: Kurtosis is calculated by Excel.

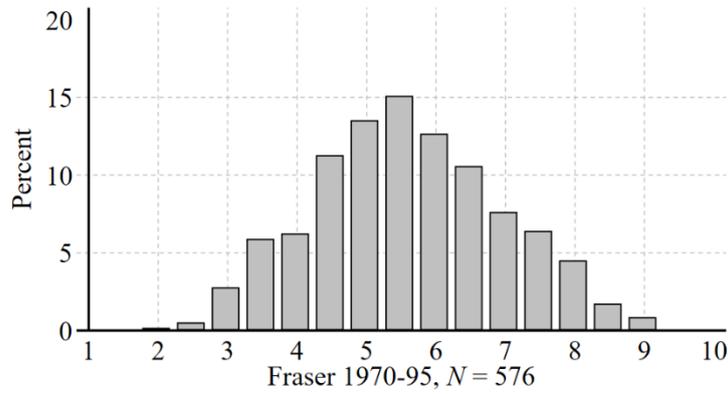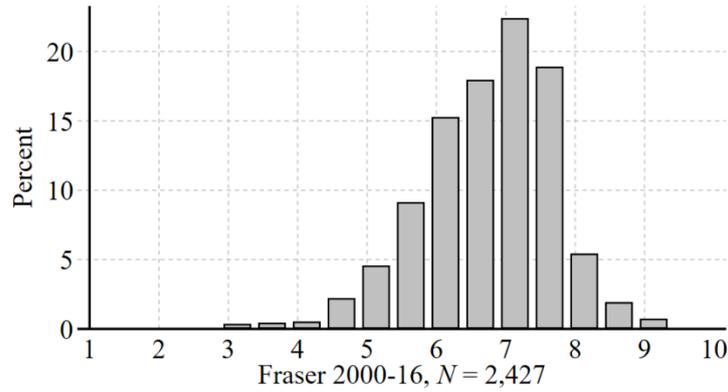Figure A1. Histograms of the Polity and the Fraser indices

Polity 1960-99
Yearly

Fraser 1970-95
5-yearly

Polity 2000-16
Yearly

Fraser 2000-16
Yearly

Note the large shift to the right in the two indices after year 2000, due to fall of socialism in the East block and elsewhere.

Polity, Fraser and income is available for years 2000 to 2016 for most of the same countries. I have made a *V*-measure for the average annual numerical changes in the Fraser index for year 2000-16. This index is termed *V*-Fraser. To distinguish I term *V* and *Z* from the main text *V*-Polity and *Z*-Polity. Table A3 and A4 compare the effect of the indices for the 144 countries where all indices and the growth rate are available. The two tables are parallel with Tables 5 and 6 in the main text. *V*-Fraser is a much stronger and more significant variable than *V*-Polity and *Z*-Polity. We also note that the three variables have little collinearity.

Table A3. As Table 5 but with Fraser V included

$N = 144$	Growth	*V*-Fraser	*V*-Polity	*Z*-Polity
Growth	1			
V-Fraser	-0.392	1		
V-Polity	-0.131	0.148	1	
Z-Polity	-0.244	0.047	0.102	1

Note: *V*-Polity is *V* in main text, and *Z*-Polity is *Z* in main text.

Table A4. As Table 6 but with Fraser V included

$N = 144$	(1)	(2)	(3)	(4)	(5)
V-Fraser	**-9.418** (-4.9)	**-9.598** (-4.9)	**-9.875** (-5.1)		
V-Polity	-0.233 (-0.7)	-0.326 (-1.0)		-0.571 (-1.6)	
Z-Polity	**-5.379** (-2.9)				**-5.936** (-3.0)
Constant	**3.575** (12.3)	**3.506** (11.8)	**3.417** (12.1)	**2.332** (12.3)	**2.254** (16.8)
R^2	0.207	0.159	0.154	0.017	0.059
R^2 adj	0.190	0.149	0.148	0.010	0.053