

The Narrow Corridor and the Heel of Achilles: how social contracts can collapse

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1. Introduction

1.1 *Natural Justice* and *The Narrow Corridor*: an analogy

In *Natural Justice*, where the notion of a social contract is examined from a game theoretic perspective, Ken Binmore (2005) concludes that sustainability of social norms imposes three requirements, those of stability, efficiency and fairness. *The Narrow Corridor*, a more recent study of how nations struggle for liberty by Acemoglu and Robinson (2019), offers an apparently contrasting perspective. From the history of many nations over many centuries, the authors conclude that what is needed to promote 'life liberty and the pursuit of happiness' is a balance of powers between that of the people and that of the sovereign or state. Without this balance, they warn, comes the descent into anarchy or into despotism.

What if the 'Narrow Corridor' is where the conditions that Binmore specifies may be satisfied; while the situations of imbalance are where the social contract no longer operates? This is the analogy pursued in the first part of the paper, using simple logistical models of progress for the purpose. The breakdown of the social contract, triggered by the imbalance of powers, has the effect of allowing the stronger power to bully the weaker - possibly till it is entirely powerless.

1.2 Populism: a cautionary tale

A key feature of recent times has been the challenge posed by populism to democratic rule, even in countries like the US and UK which are assigned secure positions inside the Narrow Corridor by Acemoglu and Robinson. What light, if any, might the proposed analogy throw on this development?

In a more recent paper, Binmore (2020) warns that social norms have a weakness – what might be dubbed a Heel of Achilles. This weakness is that norms which are robust against defection by *individuals* in society will nevertheless be exposed to defection by *coalitions* within society – and, he speculates, social media have made the organisation of such coalitions much easier.

The kind of social norms that can be modelled as perfect equilibria are only stable in the face of individual deviations. Only in very exceptional circumstances can equilibria

¹ Acknowledgements: While responsibility for views expressed rests with the authors, we are grateful to Andy Krupa and Gylfi Zoega for helpful criticism and comment.

be found that are stable against the type of closely coordinated deviations that the creation of the internet has made possible. Binmore (2020, p.12, 13).

How the efficacy of the Narrow Corridor might be undermined by aggressive behaviour in the dynamic framework we have adopted, is suggested by qualifying its cooperative spirit with features drawn from ‘competing species’ models of animals sharing common territory.

2. The Narrow Corridor of Acemoglu and Robinson (aficianados can skip!)

We begin with a brief outline of the framework of Acemoglu and Robinson, reproduced in Figure 1 below where, following Hobbes’s terminology, the term ‘Leviathan’ is used to refer to the state. The authors explain the variable on the horizontal axis refers to ‘how powerful a society is in terms of its norms, practices and institutions, especially when it comes to acting collectively, coordinating its actions and constraining political hierarchy.’ The variable on the vertical axis ‘similarly combines several aspects including the power of political and economic elites and the capacity and power of state institutions’, A& R (2019, p. 63).

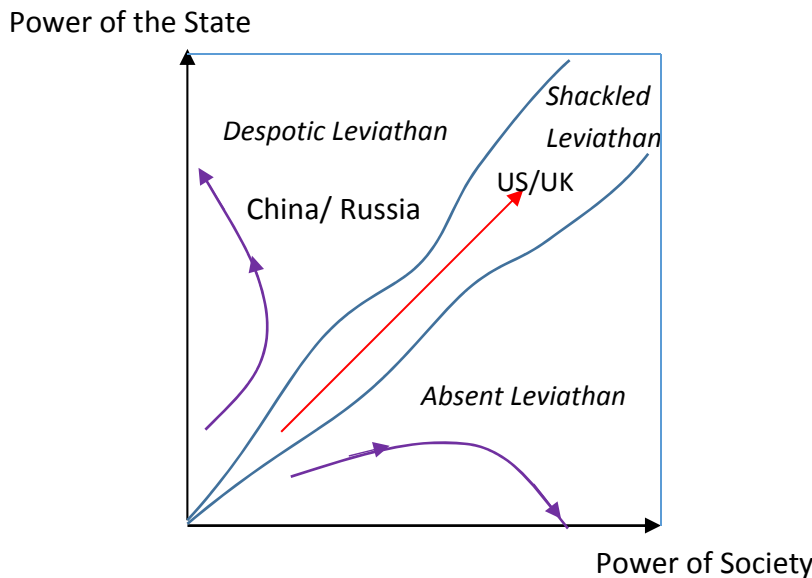


Figure 1 The evolution of Despotic, Shacked and Absent Leviathans

There are, as illustrated, three ‘regimes’, one of progressive Disorder, one of growing Despotism (respectively below and above the diagonal), leaving a Narrow Corridor for Democratic development in between.

It should be added that these dynamic paths (to be discussed further below) are subject to substantial shocks – treated as discrete changes in ‘initial conditions’ - the collapse of the USSR (with the end of the explicit monopoly of the Communist party) to take a recent example. In general, such shocks can have substantial long-run effects as they may lead to ‘crossing the border’ from one regime to another. Not in this specific case, however, as the view expressed by the authors is that the degree of State power in Russia, though

diminished, is still too great for democracy. So Russia still lies outside and above the Narrow Corridor, A& R (2019, p. 268).²

Unsurprisingly, China is located there too; while the US and UK are placed within the Narrow Corridor.

2. An alternative approach, where ‘under-dogs’ get mistreated

In his colourful review of their framework, James Fenske (2020) complains that Acemoglu and Robinson omit key aspects of economic history - the role of ‘external’ threats in particular. That external factors may play an important role in the viability of pre-existing social contracts is not to be denied. But the focus here is quite different. It is to provide a rationale for the dynamics that they describe by considering how behaviour may change when social norms operating in the Narrow Corridor break down. (This approach provides an alternative to the ‘patent race’ rationale explored in Acemoglu and Robinson, 2017.)

As a simple, stylised model of growth in what follows, we use the logistic law of population growth of Pierre-Francois Verhuist, where the population $p(t)$ evolves as

$$\dot{p} = \beta(1 - p)p = \beta(p - p^2)$$

given that its equilibrium size is normalized to 1³. Though initially proposed as a model of population dynamics, where Malthus’s prediction of exponential growth was modified to take account of the limits imposed by the environment, it has since found many other applications - in studying the spread of disease, to give a topical example.

The model of Smithian growth proposed by Morgan Kelly (1987), where linkage formation plays a key role, also shares the feature of sigmoidal growth: starting from near zero, there is an initial period of accelerating growth (due to the exploitation of increasing returns to specialisation) followed by a slowdown (as these are all exploited) and output tends to its limiting value, see Annex 1.

An important extension to the logistical model, to be utilised below, involves the dynamic consequences of similar species competing with each other in an environment where their common food supply is limited.

3.1 Growth paths with nearly balanced power.

To begin with, we follow Acemoglu and Robinson in assuming that *social progress requires the combined application of two forces or powers*, as they call them, the power of society and that of the state; and that these be kept in reasonable balance.

Using the notation of p for power of the people and s for the power of the state, both constrained to lie between zero and one⁴, we assume common logistic growth, so

² This is a much more gloomy assessment than that implied by the ‘theory of informational autocracy’ of Guriev and Treisman (2020).

³ This gives an S-shaped time path $p(t)$ defined by $p(t) = \frac{p(0)}{p(0) + (1 - p(0)) \exp(-\beta t)}$.

⁴ As in Acemoglu and Robinson (2017)

$$\dot{p} = \beta^*(1-p)p \quad (1)$$

and

$$\dot{s} = \beta^*(1-s)s \quad (2)$$

Starting with $s_0 = p_0$, for example, then both will proceed along the diagonal in Figure 2, as shown by the path leading to (1,1).

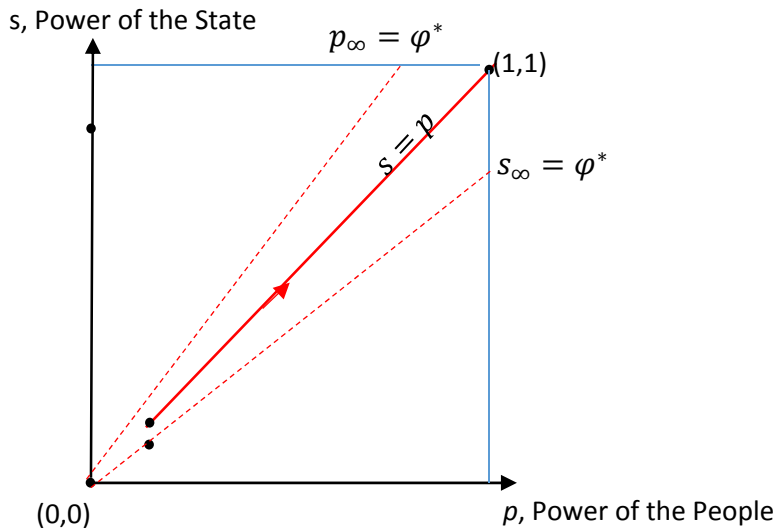


Figure 2 Matching growth in a Narrow Corridor

The notion of balanced expansion can, however, easily be expanded beyond this special case to allow for some inequality. Consider, for example, the case where one power proceeds as a constant fraction of the other. So, for example, $s = \varphi^* p$ ($\varphi^* < 1$) where s is the 'underdog' (i.e. the weaker power), as illustrated by the dashed line lying beneath the diagonal in Fig 2.

Note that, assuming that p continues to proceed as in (1) above, this will involve altering the dynamics of s . Specifically

$$\dot{s} = (\beta^*/\varphi^*)(\varphi^* - s)s \quad (2')$$

So the speed of adjustment needs to be increased to compensate for the reduction in the long run capacity (from 1 to φ^*) and ensure matching growth.

Where the state has more power, the same logic will lead to convergence at the point shown as $(\varphi^*, 1)$ in Figure 2.

Discussion

There is no explicit positive interaction indicated in this case, which looks like ‘live and let live’. It might, however, better be described as ‘live and let thrive’ because, as an externality from coordinated development⁵, we postulate the speed of adjustment β^* specified here is higher than for each power outside the Corridor.

It has to be admitted that this characterisation lacks the frenzy of positive-sum competition of the contest model of Acemoglu and Robinson (2017) - involving ‘all or nothing’ payoffs like those in the race for a new patent. It has closer resemblance to the frescoes painted by Ambrogio Lorenzetti that they use later to illustrate the nature and effects of Good Government in the city of Sienna, chosen as an example of life in the Narrow Corridor, A&R (2019, Chapter 5).

What is important here is, actually, what is ruled out - namely the elements of Bad Government and the practices it permits. Thus there is no Tyranny, nor Justice bound, no War nor Desolation – features that the authors associate with Despotic and Absent Leviathans.

In what follows, however, we assume that there is a limit to the imbalance between the powers consistent with the peaceful coexistence characterised here, so $\varphi \geq \varphi^*$ will be necessary for staying in the Narrow Corridor. This perspective seems broadly in accord with what Binmore claims are fundamental features of fairness that sustainable social contracts must respect. ‘What are the countries in which people are happiest and most productive?’ he asks.

They are the countries with constitutions that protect their citizens from tyranny, and guarantee the fair administration of justice. I don’t think any of this is accidental or coincidental. I think evolution wrote a yearning for freedom and justice into our nature that no amount of social conditioning by the Stalins and Hitlers of this world will ever be able to eradicate. Binmore (2005, pp.138,9)

How such adverse outcomes may nevertheless emerge when social contracts break down and the practices of Bad Government replace the norms of civilised societies is what we examine next.

3.2 Excessive Imbalances and ‘bullying the underdog’

(a) The Descent to Anarchy: *the Hobbesian nightmare*

What if some shock leads to a power imbalance sufficient to cause a breakdown of the social contract of ‘live and let thrive’? What if crossing boundaries, like those shown by dashed lines in Figure 2, leads to negative impediments being imposed on the ‘underdog’? This could be the state, with increasing lawlessness leading to what Hobbes called a condition of ‘warre’ or anarchy, where economic incentives are all but destroyed. Or it could

⁵ Possibly arising from healthy – i.e. positive sum – competition between the two powers.

be the people who are underdogs, suffering repression of political demonstrations and the imprisonment of opposition candidates, for example.

Where the breakdown of the social contract takes the form of the ‘top-dog’ slowing the growth of the ‘under-dog’, we find that the outturns can broadly replicate the dynamics of *The Narrow Corridor*.

To see this, consider first the Hobbesian case where it is the power of the state that is under threat. We sketch the phase portrait for $s \leq p$ assuming, for the moment, that the Narrow Corridor is represented only by the diagonal (to be widened later, in response to a comment by Daron Acemoglu on an earlier draft.)

As the people have more power, p continues much as before, so

$$\dot{p} = \beta(1 - p)p \quad (3)$$

except that convergence is now slower than in the Narrow Corridor as $\beta < \beta^*$.

For $s < p$, however, we postulate that the growth rate of the state will in addition be impeded by $-\gamma p$, a term designed to capture how the people will try to ‘cripple the power of elites’(as suggested by A&R, 2019, p.65), so

$$\dot{s} = \beta(1 - s - \gamma p)s \quad (4)$$

This will generate dynamics as shown in Fig 3 for the case where $\gamma = 1$. See Annex 2 for technical detail.

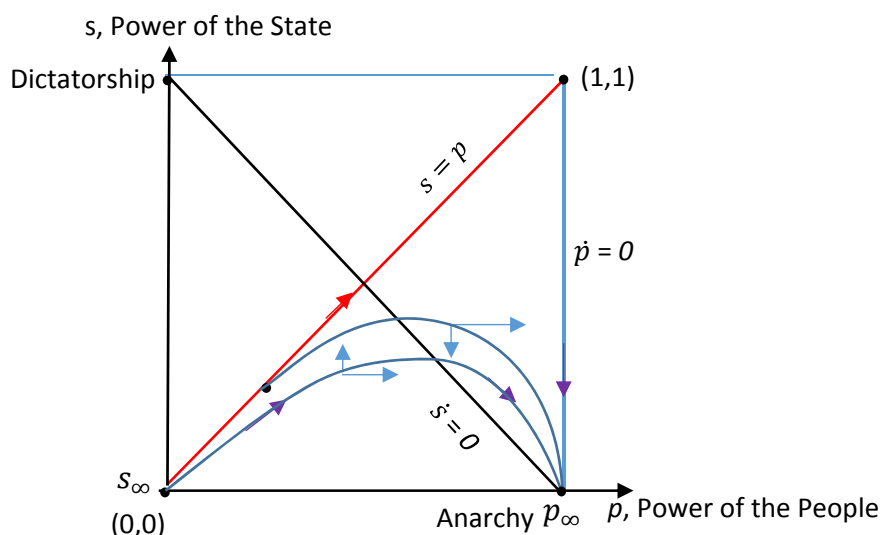


Figure 3 Bullying: and the off-diagonal dynamics it can induce

Finally, the better to match Acemoglu and Robinson’s outline of the Narrow Corridor, assume that the ‘growth-blocking’ term $-\gamma p$ only applies for $s < \varphi^* p < p$. So common

growth rates⁶ only begin to fail if some shock takes the system outside the corridor, where the social norms no longer apply – allowing the strong to cripple or bully the weak. Splicing together the Narrow Corridor of Figure 2 and the deliberate blocking of growth in Figure 3 provides the dynamics shown in Figure 4 below.

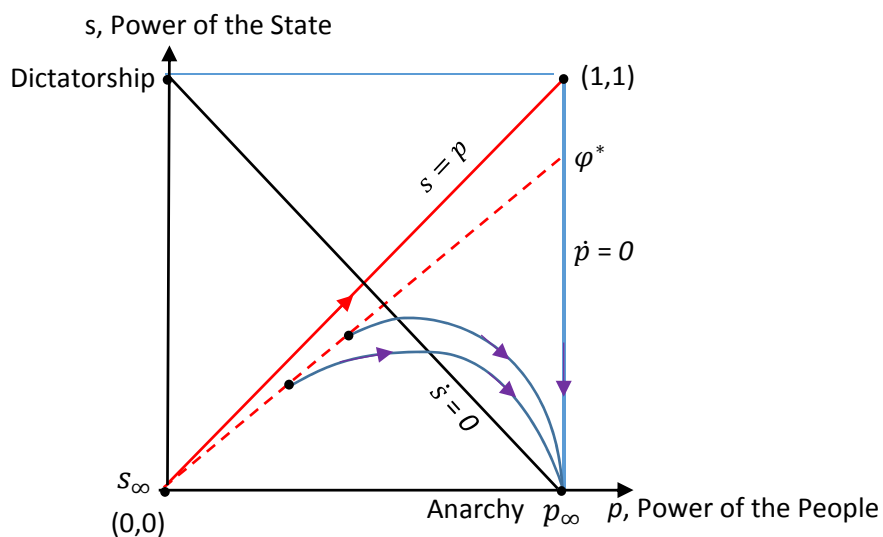


Figure 4 Allowing for a wider Corridor

Discussion

By condoning action to cripple state power, a breakdown of social norms that keep growth rates in common and preserve a reasonable balance of power can significantly reduce the power of a weak state in the long run. It may even lead to the elimination of state power in the Hobbesian case, captured here by setting $\gamma=1$. The paths we derive correspond broadly with that shown below the diagonal in Figure 1, which, in their words,

begins where society is more powerful than the state and can stymie the emergence of powerful centralized state institutions. The fear of the slippery slope⁷ implies that where possible, *society will try to cripple the power of elites* and undercut the political hierarchy, so the power of state-like entities declines further, and the Absent Leviathan gets established even more firmly. A&R (2019, p.65) [emphasis added]

(b) The Path to Supremacy: Acemoglu and Robinson's 'fear of the slippery slope'

What of the authors' heartfelt critique of Hobbes, highlighted by the trajectory leading to a Despotic Leviathan in Figure 1? How is this covered in the current framework? The answer lies in mirroring what has just been described.

⁶ Of either $\beta^*(1-p)$ or $\beta^*(1-s)$ depending on whether the system lies below or above the 45 degree diagonal

⁷ i.e. to Despotism

In this case, where the state starts as ‘top-dog’, the initial condition near the origin is one where $s_0 > p_0$, so the path will start above the 45 degree line in Figure 5. Thereafter both powers will evolve as in equations (3) and (4), except that the growth slowdown suffered by the ‘underdog’ now appears in the first equation - representing what Acemoglu and Robinson describe as ‘the emasculation of society’ by the state. Here, as suggested earlier, it might represent the repression of political demonstrations and the imprisonment (or worse) of opposition candidates (like Alexei Navalny in Russia).

$$\text{Evolution of power of the people} \quad \dot{p} = \beta(1 - p - \gamma s)p \quad (3')$$

$$\text{Evolution of power of state} \quad \dot{s} = \beta(1 - s)s \quad (4')$$

Once again there are two stationary points, the origin which is unstable and (for $\gamma = 1$) a stable point of absolute power for the state. Assuming, as before, that the growth-blocking term $-\gamma s$ is only applied outside the Narrow Corridor leads to the symmetric outcome displayed in Figure 5. (Note that, as two separate dynamic systems are being shown on the same figure, the labels attached to the isoclines only apply in the relevant half space.)

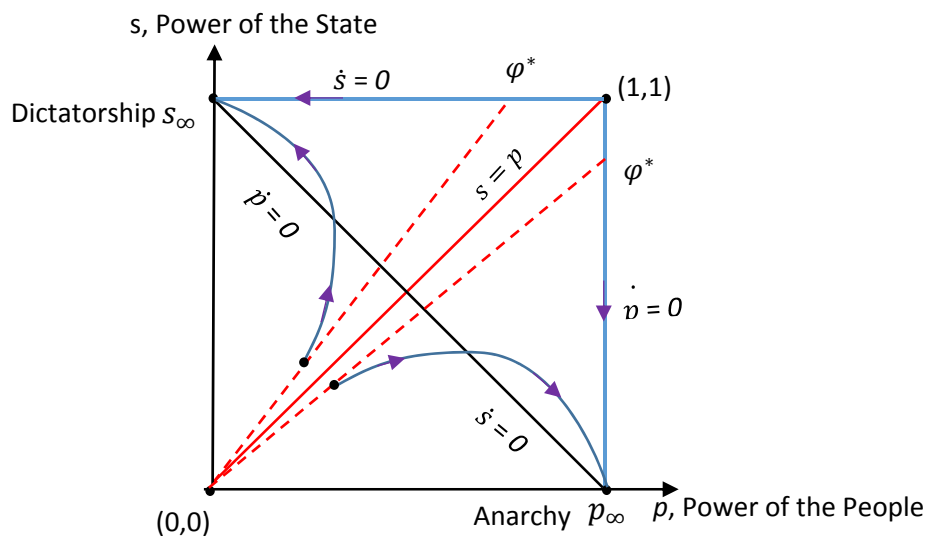


Figure 5 When social norms operate - and when they break down

Discussion.

The breakdown of social norms that hold the power of the state in check can lead to its ever-increasing dominance. As Acemoglu and Robinson put it:

Starting with greater initial levels of state and elite power than societal power ... the configuration favors the emergence of the Despotic Leviathan. Here the arrows travel towards yet higher levels of state power. In the meantime, the power of society gets eroded as society finds itself no match for the state. This tendency is exacerbated as *the Despotic Leviathan works to emasculate society* so that it remains unshackled. In

consequence, over time the Despotic Leviathan becomes overwhelmingly powerful relative to a meek society. A&R (2019, p.65) [emphasis added]

Indeed, if one treats the suppression of people's rights and powers as corruption, one could say that the outcome shown in Figure 5 satisfies Lord Acton's dictum: "Power tends to corrupt, and absolute power corrupts absolutely"!

(c) How to maintain social norms

Since leaving the Narrow Corridor can have such dire consequences, society may seek to take early preventive action. To see how 'stages of punishment' can be used to maintain social norms, Binmore considers evidence from hunter-gatherer societies. These, he reports,

operate a social contract that holds the power of any individual in check by bringing to bear the power of the group as a whole whenever anyone shows signs of getting bossy. At first, the bossy character is mocked. If he persists, he is ostracized. In extreme cases, he may be expelled from the group altogether – in which case he will be lucky to survive. Binmore (2005, p.41)

Acemoglu and Robinson find an interesting historical parallel. In discussing of how Athens 'gradually built one of the world's first Shackled Leviathans, a powerful, capable state effectively controlled by its citizens', they observe that:

Cleisthenes ... formalized the institution of ostracism as a means of restraining the political dominance of powerful individuals. ... Like Solon's Hubris Law, it was a tool using and transforming the norms of society for disciplining elites⁸. Ostracism was used sparingly, and only fifteen people were ostracized over the 180-year period when the institution was in full force, but just the threat of ostracism was a powerful way for citizens to discipline elites. A&R (2019, p.45)

Would the *sequencing* that Binmore describes – elsewhere summarized as laughter, boycotting and expulsion – not be more efficient in preventing departures from the Narrow Corridor than threats of severe punishment exercised less than once a decade?

Evidence of such 'stages' of punishment is available from medieval Siena where, we are told:

Norms were brought to bear to protect the commune from the Nine and other politically powerful individuals. For example, taking a page from the Athenians who came up with the Hubris Law, you could give politicians that were too big for their britches a "bad name" – literally. ... Get too powerful or misbehave, and you risked getting a surname featuring Caca. A&R (2019, p.132)

Perhaps we have, in the UK, just observed the early stage of such a sequence. With the government having taken very substantial powers of social control in the light of the pandemic, a key executive was nevertheless forced to resign as Health Secretary despite getting the backing of the Prime Minister. Why so? Surely because - after tabloid revelations of him in close embrace with an office colleague – for him to tell the public to stay two

⁸ Further details of the Hubris Law and 'How to Ostracize if You Must' are reproduced in Annex 3.

metres away from people outside their household would have provoked not compliance but mocking laughter!

4. Trouble at t'mill: the social contract undermined

Binmore (2020) warns that social contracts which are proof against individual defection can nevertheless be undermined by 'populist' coalitions. The result could be serious threats to the state power - such as the 2021 storming of the Capitol in the US by supporters of the outgoing President. As one way of incorporating such threats into our dynamic frame work, we could change the initial 'live and let thrive' characterisation of the Narrow Corridor so that elements of Bad Government are no longer excluded. The results are predictably negative.

Even without explicit 'growth-blocking' (as captured by the terms $-\gamma s$, $-\gamma p$ above), the absence of a contract that helps the weaker power speed up allows considerable inequality of power to emerge *en route* to a final state of balance. But when persistent, competitive blocking is added (i.e. by the simultaneous inclusion of terms like $-\gamma s$, $-\gamma p$ above at all times), this transient inequality becomes much more pronounced - though stable coexistence may still exist as a unique equilibrium. With fierce competition, however, coexistence of both powers becomes extremely unlikely in the long run, as the point of coexistence becomes unstable. (Annex 4 shows the phase portrait for aggressive competition, where coexistence is a saddle point approached by only one path - with all others leading to the elimination of one or other of the powers.)

Modifying the dynamics in this way serves to underline the alarm expressed by Binmore - as significant competition for power can seriously undermine the erstwhile harmonious dynamics of the Narrow Corridor.

5. Conclusion

To support the idea that liberty requires a delicate balance of powers between the state and the people in a Narrow Corridor, Acemoglu and Robinson essentially appeal to history – and, in A& R (2017), to a formal model of 'contest'.

We believe that there may be value-added in treating the Narrow Corridor as a region where positive social norms prevail, so leaving the Narrow Corridor involves some violation of Binmore's conditions for sustainability. Our simple framework indicates what can happen when social forces that can generate positive progress get sufficiently out of balance as to provoke behaviour proscribed by the social contract.

It delivers results like those of Acemoglu and Robinson using a rationale suggested by Binmore's *Natural Justice*. For tolerable imbalances not much inefficiency follows: but those that cross the red lines bounding the Narrow Corridor can destroy the social norms that promote positive progress, reducing the speed of development and freeing the strong to cripple or bully the weak in lethal fashion. That the framework we use with logistic growth is grossly simplified is not to be denied. But this simplicity surely helps in bringing together their ideas with those of Ken Binmore; and allows for easy derivation of key results.

If populism allows coalitions to reject otherwise sustainable social norms, it is easy to see how it too can undermine the positive coevolution associated with balanced growth.

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Annex 1 Sigmoidal Smithian growth

Morgan Kelly (1987) "The dynamics of Smithian growth".

'The paper analyses the evolution of an economy where growth is driven by increased specialisation caused by the geographical expansion of markets. It proves that such Smithian growth exhibits generic threshold behaviour. Below a critical density of transport linkages, the economy is split into isolated local markets with limited specialization. Above the critical density, these markets begin to fuse into a large, economy wide market causing growth to accelerate. (Abstract, p.939).

As more linkages are added, all sites become incorporated and the potential for growth through increased specialization becomes exhausted. (p.940)

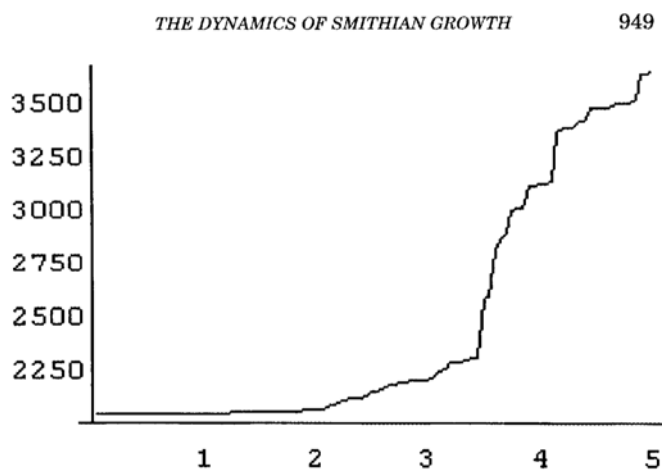


FIGURE II
Simulation of Output Growth

The threshold effect is illustrated the Figure which simulates output growth in an economy with more than a thousand sites. Investment in linkage formation begins at $t = 0$. The initial growth of the economy is slow until the critical density of linkages is reached around $t = 1.15$. Accelerated growth continues until around $t = 5$ by which time nearly all sites have been incorporated into one single market [and] the possibilities of growth through increased specialization have been exhausted. (pp. 948,9.)'

Annex 2 Derivation of the phase diagram in Figure 3.

Consider the system below the diagonal, where $s < p$

Given the dynamics applicable here, as specified in the text,

$$\dot{p} = \beta(1 - p)p \quad (3)$$

$$\dot{s} = \beta(1 - s - \gamma p)s \quad (4)$$

we first look for points of stationarity, which are to be found at (0,0) and at (1, 1- γ) where $p=1$ and $s + \gamma p = 1$ intersect. If, for example, we set $\gamma = 1$ so $s + p = 1$, this gives the stationary point (1,0) shown in Figure 3.

It seems clear that while the origin is an unstable node, the other point of stationarity is a stable node⁹. Further details of the dynamics can be obtained by sketching the phase portrait. Observe that the straight lines in the figure are the isoclines where $\dot{p} = 0$ and $\dot{s} = 0$ and the directions of motion can be obtained by recognizing that \dot{p} and \dot{s} take positive and negative values as indicated by the arrows in the figure.

This information, together with the nature of the fixed points, is sufficient to construct the sketch of the phase portrait shown in Figure 3. Note that $\frac{ds}{dp} < 1$ where $s=p$, as indicated in the Figure.

Annex 3. Hubris and Ostracism

Hubris Law

One of the most interesting ways in which Solon (c. 630 –c. 560 BC) institutionalized popular control over elites was via his Hubris Law. This law created the crime of *graphai hubreos*, behaviour aimed at humiliation and intimidation. The Hubris Law enabled Athenians not only to control the elites, but also to enjoy liberty from the dominance of powerful individuals. A&R(2019, p.19)

How to Ostracize if You Must

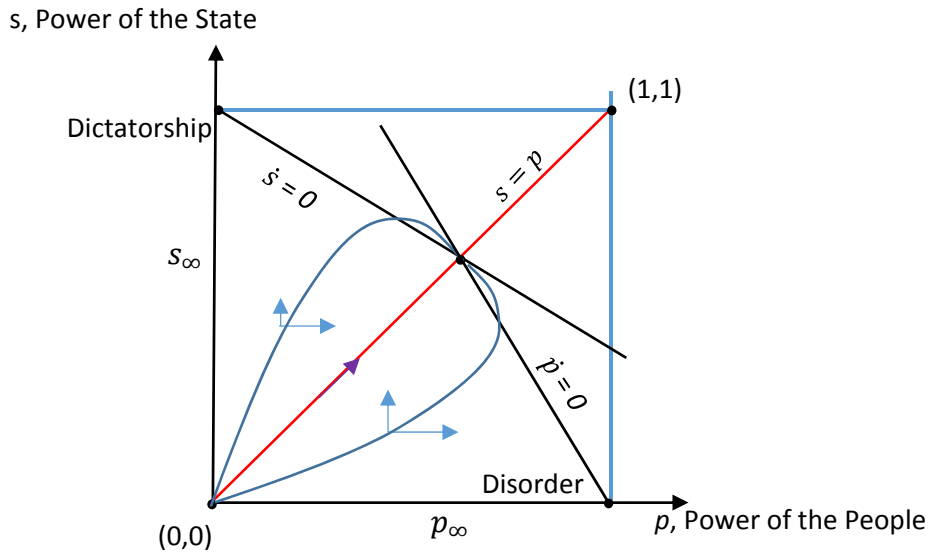
[According to the law of Cleisthenes¹⁰], every year the assembly [of all male citizens] could take a vote on whether or not to ostracize someone. If at least 6,000 people voted and at least half of them were in favour of an ostracism, then each citizen got to write the name of a person whom they wanted ostracized on a shard of pottery. The person whose name was written on most shards was ostracized – banished from Athens for ten years. A&R(2019, pp.44,45)

Annex 4. Competing powers

The (negative sum) implications of competition between the powers, captured by including both the ‘growth-blocking’ terms, are shown in the phase portraits below. In Case 1, with $\gamma \approx 0.5$ in the equations for each power, there is a unique equilibrium with stable co-existence, but at subdued level between (1,1) and (0.5, 0.5).

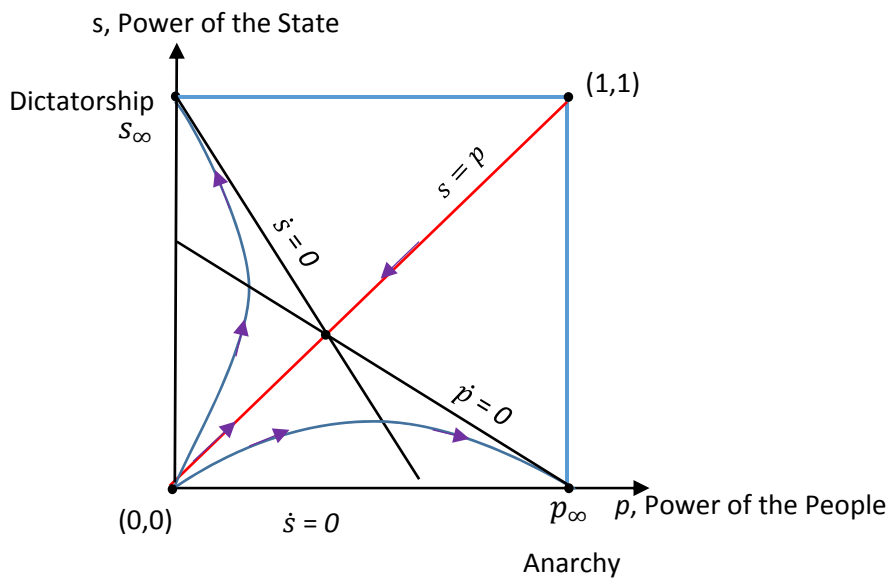
⁹ Formally this can be established by examining the eigenvalues of the linearized system of dynamics $\dot{\mathbf{y}} = \mathbf{W}\mathbf{y}$ at each fixed point, where \mathbf{y} are the local coordinates at the fixed point, Arrowsmith and Place(1992, p.181).

¹⁰ Cleisthenes lived c. 570 – c. 508 BC; he is credited with being ‘the father of democracy’.



Case 1: Mild 'growth blocking', $\gamma \approx 0.5$

In Case 2, with $\gamma > 1$ in the equations for each power, there is an equilibrium at low level with stable co-existence but at subdued level between (1,1) and (0.5, 0.5). This is, however, approached by a unique **saddle path**; otherwise one or other species is eliminated, cf. Fig 5.16 in Arrowsmith and Place (1992, p. 182).



Case 2 Aggressive 'growth blocking', $\gamma > 1$