HI-14 The cycle theorists: Polybius, Ibn Khaldun, Turchin

The permanent loss of industrial supply chains and the receding reach of the centralized state present a unique architectural challenge for the future of human organization. As surviving populations rebuild governance from the household to the village, and eventually to the district and bioregional scales, they face an evolutionary landscape littered with the remains of collapsed polities. The observation that complex human governance structures rise, stagnate, and inevitably collapse in predictable patterns is among the oldest traditions in historical sociology. From the classical formulations of Polybius to the structural-demographic equations of modern cliodynamics, cycle theory posits that the architecture of civilization inherently produces the mechanisms of its own destruction. The fundamental question for post-collapse institution building is not merely why historical polities failed, but whether human communities can engineer mechanical institutional brakes to halt the cycle of elite overproduction, mass immiseration, and subsequent state capture by individuals exhibiting dark-triad traits—narcissism, Machiavellianism, and psychopathy.

This report provides an exhaustive evaluation of cycle theory, integrating the classical models of Polybius and Ibn Khaldun with the empirical, big-data methodologies of Peter Turchin and the Seshat Global History Databank. It subsequently examines the fiercest critics of cyclical determinism, notably Walter Scheidel's thesis on the violent reduction of inequality and Ian Morris's perspectives on energy capture, and assesses historical anomalies—such as the Venetian Republic—that successfully suspended cyclical decay through mechanical institutional design.

The Classical and Philosophical Cycles

The conceptualization of history as a cyclical rather than linear progression long predates the advent of quantitative sociology. These early theories relied on the qualitative observation of human nature, intergenerational psychological shifts, and the inevitable decay of social cohesion in the presence of material abundance and scale.

Plato, in Books VIII and IX of the *Republic* (c. 375 BCE), articulated a psychological and political cycle of decay moving through five regimes: Aristocracy (rule by the wise), Timocracy (rule by the honorable or martial), Oligarchy (rule by the wealthy), Democracy (rule by the masses), and finally Tyranny (rule by a despot). Plato argued that the structural flaw in any governance model is intergenerational inheritance; the heirs of virtuous rulers inevitably lack the foundational struggles that built their parents' character, leading to corruption, the hoarding of wealth, and subsequent systemic transformation.

Polybius (c. 200–118 BCE) formalized this psychological decay into a rigorous historical model in his *Histories*, detailing the theory of *anacyclosis*. Polybius observed that simple forms of government—monarchy, aristocracy, and democracy—are inherently unstable and carry the seeds of their corrupted counterparts: tyranny, oligarchy, and ochlocracy (mob rule). According to Polybius, primitive society begins under the rule of a strongman. When the monarch's heirs become tyrannical, the noble elites overthrow them, establishing an aristocracy. When the

aristocrats' descendants hoard wealth and power, the masses revolt, establishing a democracy. When the democracy decays into chaotic mob rule, the populace eventually welcomes a new strongman to restore order, restarting the cycle.

Giambattista Vico (1668–1744 CE) expanded on classical cycles in his *Scienza Nuova*, proposing that civilizations evolve through three distinct ages: the Divine (ruled by religious authority and fear of the gods), the Heroic (ruled by martial aristocracies and patriarchal power), and the Human (characterized by reason, democratic equality, and eventual decadent collapse)[1]. Vico argued that the role of religion is fundamental to human cohesion; without a shared divine framework, there is no basis for social life, and the Human age inevitably dissolves into the "barbarism of reflection," where hyper-rational self-interest destroys the polity, forcing a return to the Divine age[1].

Tripartite Assessment: The Mixed Constitution

Regarding what the arrangement's own people said it did, Polybius explicitly claimed that the Roman Republic (prior to 133 BCE) had permanently broken the cycle of *anacyclosis* through the implementation of a "mixed constitution." By combining monarchical elements in the two Consuls, aristocratic elements in the Senate, and democratic elements in the popular assemblies and Tribunes, Rome theoretically balanced competing class interests, thereby arresting the cycle of decay.

Regarding what the historical record shows, the Roman Republic did not break the cycle; it merely delayed it. The influx of immense wealth and enslaved labor following the Punic Wars, culminating in the destruction of Carthage in 146 BCE, led to massive elite land hoarding (*ager publicus*). This triggered extreme inequality, the populist revolts of Tiberius and Gaius Gracchus (133 and 121 BCE), a century of brutal civil war involving Marius and Sulla, and the eventual installation of an autocratic Principate under Caesar Augustus in 27 BCE.

Regarding what modern scholarship infers, contemporary political scientists view Polybius's mixed constitution not as a permanent cure, but as a scale-limited buffering mechanism. It effectively managed intra-elite competition and class conflict within the geographic confines of the Italian peninsula. However, once the scale of wealth extraction from a Mediterranean empire outpaced the institutional mechanisms for localized wealth distribution, the system suffered from massive elite overproduction and collapsed back into centralized autocracy.

Capture Test: Classical Republics

A faction led by dark-triad individuals captures a mixed constitution by bypassing the deliberative bodies and directly weaponizing the immiserated masses. The capture of the Roman Republic by the First Triumvirate of Julius Caesar, Gnaeus Pompeius Magnus, and Marcus Licinius Crassus in 60 BCE exemplifies this. Crassus utilized massive extracted wealth to fund private armies; Caesar, displaying high Machiavellianism and narcissism, utilized populist rhetoric to command the loyalty of the mob and the military; Pompey manipulated the institutional Senate. They effectively bypassed the mixed constitution's checks and balances.

The features that historically resisted this capture were deep-seated agrarian traditions of term limits (such as the dictatorship of Cincinnatus), but these features failed entirely once the economy transitioned from localized subsistence farming to globalized wealth extraction.

Scale Ledger: Classical Mixed Constitutions	Population	Operated/Worked?	Failed/Never Tried?	Reason
Household	4 to 10	Never Tried	N/A	Division into executive, aristocratic, and democratic branches is impossible at this scale.
Hamlet/Band	30 to 50	Never Tried	N/A	Lacks the class stratification necessary to necessitate a mixed constitution.
Village	150 to 500	Operated	Fails over time	Balances local elders against a general assembly, but fails when surplus agriculture allows a non-producing elite to permanently separate from labor.
Parish/District	1,500 to 5,000	Worked	Fails via consolidation	Mixed constitutions function exceptionally well at the polis level (e.g.,

				early Rome, Sparta). Fails when a singular faction monopolizes the local security apparatus.
Town/Watershed	15,000 to 50,000	Operated	Fails via wealth extraction	The scale at which urbanization degrades localized reputational tracking, allowing dark-triad actors to purchase votes and mercenary loyalty.
Region/Bioregion	0.5 to 5 million	Operated	Cyclical collapse	Operates as a mature republic. Fails due to elite consumption exceeding the regional carrying capacity, triggering civil war.
Nation/Continent	50 to 500 million	Operated	Cyclical collapse	Operates under massive imperial frameworks. Fails due to mass

				immiseration, elite overproduction, and the latency of pre-industrial communications.
Planet	8 billion	Never Tried	N/A	Requires logistical and energetic frameworks fundamentally incompatible with pre-industrial reality.

Islamic Historiography and the Nomadic-Urban Engine

Writing in 1377 CE, the Arab historiographer and philosopher Ibn Khaldun articulated a rigorous, culturally grounded sociological theory of dynastic cycles in his monumental work, the *Muqaddimah*[1]. Predating modern sociology by centuries, Ibn Khaldun identified the absolute driving force of human history as *asabiyyah*—a concept translating to social cohesion, group solidarity, or tribalism[3].

Ibn Khaldun proposed a four-generation model of dynastic rise and fall, operating on a strict chronological timeline of approximately 120 years, representing four human generations of roughly 30 years each[1]. His model is driven by the structural tension between the harsh, primitive conditions of the desert (*badawa*) and the luxurious, decadent conditions of sedentary urban civilization (*hadara*)[1].

The 120-year cycle operates through four distinct generational phases. The first generation (Emergence) is born in the uncivilized periphery. Survival in the desert requires absolute mutual reliance, courage, and self-sufficiency, producing exceptionally high *asabiyyah*. Because they are highly unified, this primitive group easily conquers a sedentary, urbanized civilization that has grown fractured and weak[1]. The second generation (Consolidation) transitions to urban life. The new ruler centralizes power, building infrastructure and creating economic prosperity. However, the ruler inevitably alienates the original tribal allies to secure personal dominance. *Asabiyyah* remains moderate but shifts fundamentally from voluntary tribal loyalty to paid state loyalty[3].

The third generation (Decline) is born into immense wealth and luxury. They possess no memory of the desert struggles that forged their ancestors. They become obsessed with consumption, ornate arts, and physical comfort[1]. The state exhausts its treasury on luxury and bureaucratic overhead, necessitating oppressive taxation on the populace. The martial spirit evaporates, and the original tribal military is replaced by paid mercenaries who lack true loyalty. *Asabiyyah* is dangerously low[1]. The fourth generation (Fall) inherits a dynasty that is thoroughly corrupt, financially bankrupt, and militarily impotent. The rulers are deeply unpopular due to heavy taxation, immoral lifestyles, and internal factionalism. The polity is easily conquered by a new peripheral group possessing high *asabiyyah*, destroying the old elites and restarting the 120-year cycle[1].

This generational timescale was later echoed by the 20th-century British military historian Sir John Bagot Glubb (Glubb Pasha). In his 1976 essay *The Fate of Empires and Search for Survival*, Glubb quantified the lifespan of empires across deep time—from the Assyrians to the British—at approximately 250 years, or roughly ten generations. Glubb identified an identical psychological progression: an Age of Pioneers (outburst), leading to an Age of Conquests, an Age of Commerce, an Age of Affluence, an Age of Intellect, and finally an Age of Decadence characterized by extreme wealth disparity, the influx of foreigners, a defensive mindset, and the collapse of martial duty.

Tripartite Assessment: The Khaldunian Dynasty Regarding what the arrangement's own people said it did, Ibn Khaldun explicitly claimed that luxury and urbanization physically and morally degenerate human beings, while harsh rural conditions breed virtue, honor, and social cohesion[1]. He viewed this 120-year cycle as an inescapable natural law of human organization ordained by God and biology. Regarding what the historical record shows, the history of North Africa, the Middle East, and the broader Islamic world heavily corroborates Ibn Khaldun's model for the medieval period. The rise and fall of the Umayyad Caliphate (661–750 CE), the Abbasid Caliphate, the Fatimids (909–1171 CE), and the Almoravid and Almohad dynasties map with stunning precision to the pattern of peripheral, highly cohesive tribal groups conquering decadent urban centers, only to succumb to the exact same fiscal and moral decay within roughly four generations. Regarding what modern scholarship infers, contemporary sociologists view *asabiyyah* as a highly sophisticated precursor to modern concepts of "social capital" and "state legitimacy." However, modern scholars reject Ibn Khaldun's biological and moral determinism. Instead, they model his observations as a structural-fiscal cycle: as a state matures, administrative overhead and elite consumption grow exponentially, eventually exceeding the tax base's carrying capacity. The reliance on mercenaries is not a moral failing, but a rational response by an insecure ruler attempting to bypass the power of the traditional tribal nobility.

Capture Test: The Asabiyyah Cycle The mechanism of capture in the Khaldunian model occurs precisely at the transition from the second generation (Consolidation) to the third generation (Decline). A Machiavellian ruler, seeking absolute autocracy, deliberately destroys the *asabiyyah* of his own people. By utilizing state tax revenue, the ruler funds a mercenary security force—often composed of enslaved foreigners—loyal only to the sovereign's purse. The Abbasid Caliph Al-Mu'tasim executed this perfectly in 836 CE by moving his capital to

Samarra and building an army of Turkic slave-soldiers (Mamluks) to bypass the Arab and Persian elites. This captures the state apparatus but makes the society highly brittle. Ibn Khaldun noted that the only feature capable of resisting or temporarily reversing this capture was intense religious revitalization. A shared, intense religious ideology can artificially regenerate *asabiyyah* in an urban setting, binding the populace and the elites to a shared moral framework that strictly punishes elite defection[1]. However, this resistance is historically temporary, expiring once the religious leadership merges with the economic elite.

Scale Ledger: The Khaldunian Generation Cycle	**Population**	**Operated/Worked?**	**Failed/Never Tried?**	**Reason**
Household	4 to 10	Worked (Asabiyyah origin)	N/A	High mutual reliance necessitated by absolute resource scarcity limits dark-triad behavior; defection literally means death.
Hamlet/Band	30 to 50	Worked	N/A	The primary scale of human evolutionary history. High cohesion (*asabiyyah*) is easily maintained through strict kinship and reputational tracking.
Village	150 to 500	Worked	Fails via scaling	*Asabiyyah* functions well up to Dunbar's

				number (150). Fails as population grows and face-to-face accountability is lost.
Parish/District	1,500 to 5,000	Operated	Fails via stratification	The scale at which the transition from *badawa* (rural) to *hadara* (urban) begins, eroding tribal bonds in favor of economic transactions.
Town/Watershed	15,000 to 50,000	Operated	Cyclical collapse	Urban luxury firmly takes root. *Asabiyyah* degrades rapidly as social anonymity increases and physical labor decreases.
Region/Bioregion	0.5 to 5 million	Operated	Cyclical collapse	Operates as the mature stage of the Khaldunian state. Fails at Generation 3 or 4 due to elite consumption drastically

				exceeding the regional tax base.
Nation/Continent	50 to 500 million	Operated	Cyclical collapse	Generates immense imperial wealth. Collapses completely when peripheral actors with high *asabiyyah* pierce the brittle mercenary defenses.
Planet	8 billion	Never Tried	N/A	A planetary system possesses no "periphery" from which a high-*asabiyyah* group can emerge to conquer it.

Structural-Demographic Theory (SDT) and Cliodynamics

In the 21st century, cycle theory shifted from qualitative philosophy to rigorous quantitative mathematics. Structural-Demographic Theory (SDT), originally pioneered by Jack Goldstone in the 1990s and vastly expanded by Peter Turchin, Andrey Korotayev, and Sergey Nefedov, posits that historical dynamics are driven by complex, non-linear feedback loops between three primary societal compartments: the General Population, the Elites, and the State[4].

SDT identifies a "secular cycle" of approximately two to three centuries, divided into an integrative (expansion) phase and a disintegrative (stagflation and crisis) phase[5]. The mechanics of this cycle operate with the cold precision of thermodynamic laws.

The first compartment is the General Population. In the early integrative phase, the population is low relative to the carrying capacity of the land. Labor is consequently scarce, land is abundant, and real wages are extremely high. Prosperity leads to sustained demographic growth. Eventually, however, the population overshoots the economic or agricultural carrying capacity. Labor becomes overabundant, chronically depressing real wages and inflating the cost of basic goods, primarily food and land. The standard of living collapses, leading to mass immiseration, rapid rural-to-urban migration, and the creation of a highly volatile "youth bulge" (a massive overrepresentation of individuals aged 20–29)[4].

The second compartment is the Elites. During the expansion phase, cheap labor and high land rents generate massive, unprecedented wealth for the elite class. The elite population grows exponentially, outpacing both the growth of the general population and the capacity of the society's institutional framework to absorb them. This results in "elite overproduction"—a severe structural condition where there are far more wealthy, highly educated, and ambitious elite aspirants than there are functional power slots (government offices, military commands, corporate executive positions)[5]. This mismatch creates a vast, bitter pool of frustrated "counter-elites" who are locked out of power.

The third compartment is the State. The state relies on tax revenues to maintain its bureaucracy and military. As mass immiseration sets in, the state is forced to spend exponentially more on internal security and public welfare. Concurrently, intra-elite competition leads the wealthy to utilize their systemic power to evade taxation, shifting the fiscal burden to the already starving peasantry. The state eventually faces total fiscal collapse, crippling its ability to maintain order[5].

The Mathematics of Collapse: The Political Stress Index (Ψ)

Turchin operationalizes these structural forces into a specific mathematical formula known as the Political Stress Index (PSI, or Ψ). This metric serves as a highly accurate leading indicator of severe political violence and state breakdown[6]. The equation is formulated multiplicatively:

$$\Psi = MMP \times EMP \times SFD$$

The variables are defined empirically from historical data[5]:

- MMP **(Mass Mobilization Potential):** Represents the pressure from the base. It is calculated by multiplying the urbanization rate (N_{urb}/N), the inverse relative wage (w^{-1} , a precise measure of economic distress or the "misery index"), and the age structure effect (the size of the youth cohort aged 20-29, A_{20-29})[6].
- EMP **(Elite Mobilization Potential):** Represents intra-elite competition and the size of the counter-elite pool. It is calculated as the relative elite numbers ($e = E/N$)

multiplied by the inverse of relative elite income (ϵ^{-1}). When the average economic slice per elite shrinks, vicious intra-elite factionalism spikes[5].

- SFD **(State Fiscal Distress):** Represents the state's institutional fragility. It is calculated as the ratio of total state debt to GDP (Y/G) multiplied by an empirical measure of public distrust in state institutions (D)[6].

Because the relationship is multiplicative, a state can survive high mass immiseration (MMP) if elite cohesion is incredibly strong and state finances are sound. However, if all three variables rise simultaneously—a starving populace, a fractured elite, and a bankrupt treasury—the Ψ value spikes non-linearly, predicting an imminent, devastating structural collapse[5].

Tripartite Assessment: Structural-Demographic Theory Regarding what the arrangement's own people said it did, Peter Turchin explicitly posits that cliodynamics elevates history from a descriptive humanity into a predictive science, capable of forecasting periods of extreme political instability. Most famously, Turchin published a paper in the journal *Nature* in 2010 predicting that the United States would experience a massive peak in political instability exactly around the year 2020[9]. Regarding what the historical record shows, retrospective modeling of the English Civil War, the French Revolution, the Crisis of the Third Century in Rome, and the American Civil War maps with astonishing statistical precision to spikes in the Political Stress Index[5]. Across broad historical datasets, 75% of crises marked by a high PSI resulted in civil war or revolution, half saw major population loss, and one-sixth resulted in the targeted, violent extermination of the elites[17]. Regarding what modern scholarship infers, while many economic historians respect the macro-explanatory power of SDT, critics argue the mathematical models smooth over the highly contingent, chaotic nature of political leadership and ideological shifts. Jack Goldstone, the originator of the theory, has critiqued Turchin's later works for altering the variables to fit modern data, noting that substituting raw relative wages for more abstract wealth concentration metrics weakens the historical continuity of the model[18].

Capture Test: The Counter-Elite Strike The mechanism of capture in SDT is initiated by a highly Machiavellian individual belonging to the "counter-elite." Recognizing that the structural conditions for collapse are met (high MMP, high EMP), they deliberately discard civic norms and weaponize the immiserated population. They use populist rhetoric to channel the anger of the youth bulge against the incumbent elite. Crucially, they do not wish to reform the system; they wish to liquidate the incumbent elite to free up positional power for themselves and their faction[5]. The French Revolution (1789) exemplifies counter-elite capture. The structural pressures—population growth, falling wages, massive state debt from wars, and an overproduction of educated lawyers and minor nobles locked out of power by the high aristocracy—were absolute[11]. Maximilien Robespierre, a quintessential credentialed but frustrated counter-elite, utilized the immiserated Parisian masses to physically exterminate the incumbent elite. The features that historically resisted this capture require immense foresight:

the incumbent elite must voluntarily surrender wealth (through confiscatory taxation or mandated wage increases) to reduce MMP, and voluntarily close the avenues of elite credentialing to reduce EMP. Turchin notes the British avoidance of revolution in the 19th century—achieved via the Reform Acts and the repeal of the Corn Laws by a prosocial faction of the elite—as a rare, successful historical example of reversing the cycle[17]. Conversely, Jack Goldstone notes that when the PSI spiked in the former Soviet states between 2010 and 2020, outcomes diverged based on elite cohesion: Russia and Belarus utilized elite unity to crush protests, while fractured elites in Ukraine allowed a revolution to unfold[18].

Scale Ledger: Structural-Demographic Systems	**Population**	**Operated/Worked?**	**Failed/Never Tried?**	**Reason**
Household	4 to 10	Never Tried	N/A	SDT requires distinct class stratification (masses, elites, state apparatus) which does not exist at the household scale.
Hamlet/Band	30 to 50	Never Tried	N/A	Lacks the agricultural carrying capacity dynamics necessary to trigger Malthusian overshoot and credentialed elite overproduction.

Village	150 to 500	Operated	Fails locally	Villages experience population overshoot and falling real wages, triggering localized out-migration or famine, but lack a formal "state" to collapse.
Parish/District	1,500 to 5,000	Operated	Absorbed	Can experience micro-secular cycles, but are usually absorbed into the demographic pressures of the broader state framework.
Town/Watershed	15,000 to 50,000	Operated	Cyclical collapse	Urban centers are the focal point for MMP. They attract the volatile youth bulge and the immiserated rural surplus, becoming the geographic locus of revolution[10].

Region/Bioregion	0.5 to 5 million	Operated	Cyclical collapse	The foundational scale of SDT modeling (e.g., Plantagenet England, Capetian France). Models track immiseration beautifully at this scale.
Nation/Continent	50 to 500 million	Operated	Cyclical collapse	Modern state size. Generates immense PSI spikes. The complexity of modern supply chains exacerbates collapse lethality.
Planet	8 billion	Operated	Unresolved	The current global system exhibits classic elite overproduction and mass immiseration, but a planet-wide collapse event has not yet completed a cycle.

The Data Engine: Seshat and Cultural Multilevel Selection

To empirically test SDT and other theories of cultural evolution, Turchin, Harvey Whitehouse, and an international team of scholars established the Seshat: Global History Databank. Seshat encompasses over a hundred meticulously coded variables relating to 373 distinct historical societies spanning from 9600 BCE to 1900 CE[20].

Seshat's vast datasets allow researchers to test competing hypotheses about the evolution of social complexity head-to-head. According to the Seshat team, the data heavily refutes purely functionalist explanations—the idea that complex societies evolved simply to solve administrative problems like irrigation—and refutes theories that agriculture alone was a sufficient condition for the rise of complex states. Instead, the data overwhelmingly supports Cultural Multilevel Selection (CMLS). This theory indicates that intense, brutal military competition between groups placed tremendous selective pressure on societies to scale up their information processing, ideological cohesion, and military mobilization[21].

However, the attempt to compress thousands of years of nuanced human history into machine-readable datasets has drawn fierce criticism. Edward Slingerland, a historian and director of the Database of Religious History (DRH), has mounted severe methodological critiques against Seshat[24]. Slingerland and his colleagues argue that attempting to compress highly nuanced historical, cultural, and religious phenomena into binary quantitative codes results in severe coding errors and confirmation bias[25]. For example, Slingerland points out that Seshat researchers coded the Middle Yellow River Valley as possessing writing before the advent of a "moralizing high god"—a datapoint used to support Seshat's conclusion that complex societies precede moralizing religions. Slingerland asserts this coding is flatly wrong based on qualitative sinological consensus, arguing that Seshat forces data to fit its evolutionary theories[25]. The cliodynamicists counter that qualitative historians are overly focused on esoteric outliers and fail to see statistically dominant macro-trends, insisting that without structured, quantifiable data, history remains merely "a series of anecdotes"[27].

The Critics: Scheidel, Morris, and End Times Reviewers

The mechanistic view of history proposed by cycle theorists is not without profound criticism. Detractors challenge both the theoretical implications of the cycles and the optimism that humanity can peacefully engineer its way out of them.

Walter Scheidel, an economic historian of antiquity, poses the strongest, most devastating challenge to the idea that elites can peacefully legislate their way out of a cycle. In *The Great Leveler* (2017), Scheidel exhaustively analyzes the history of the Gini coefficient (the standard metric of wealth inequality) from the Stone Age to the 21st century[28]. Scheidel's thesis is bleak and empirically rigorous: across the entirety of human history, peace and stability inherently and invariably lead to rising inequality. As long as a system is stable, those with wealth and power will co-opt systems of distribution to pump resources upward, cementing hereditary advantage[31]. Two thousand years ago, the largest Roman private fortunes equaled about 1.5 million times the average annual per capita income in the empire, a ratio effectively identical to modern American tech billionaires[31].

Scheidel argues that substantial reductions in material inequality have *never* been achieved through peaceful policy reform. Instead, inequality is only flattened by catastrophic violence,

which he terms the "Four Horsemen of Leveling"[29]:

1. **Mass Mobilization Warfare:** E.g., World War I and II. The total mobilization of the state necessitated confiscatory taxation on the rich (up to 94% top marginal tax rates) and physically destroyed immense amounts of elite capital, deeply compressing the Gini coefficient[29].
2. **Transformative Revolution:** E.g., the Russian (1917) and Chinese (1949) communist revolutions. Leveling is achieved not by policy, but through the violent physical expropriation, collectivization, and widespread extermination of the elite class[29].
3. **State Failure and Collapse:** E.g., the fall of the Western Roman Empire. When the state apparatus that enforces property rights and extracts surplus dissolves, the elites simply have infinitely more to lose than the poor. The wealth distribution compresses toward the bottom through total systemic ruination[31].
4. **Lethal Pandemics:** E.g., the Black Death (1347–1351 CE) or the Antonine Plague. By exterminating a vast percentage of the labor force (up to a third of Europe), labor becomes severely scarce. This alters the capital-to-labor ratio, forcing elites to pay vastly higher real wages and accept lower land rents, transferring wealth to the surviving peasantry[29].

Scheidel's work serves as a stark counterpoint to Turchin's hope that "prosocial elites" can choose reform. To Scheidel, the Roman senators did not willingly surrender their 1.5-million-to-one wealth ratio; the system had to physically shatter[31].

Other macro-historians, such as Ian Morris, challenge the cycle theorists by focusing on energy capture. Morris argues that while empires rise and fall in cycles, the overarching trajectory of human history is a linear increase in social development and energy capture. Each cycle of collapse is followed by a new cycle that achieves a higher ceiling of technological and organizational capacity, suggesting that cyclical decline is merely the localized friction of a species climbing an energetic ladder.

Reviews of Turchin's *End Times* further highlight the limits of SDT. Thaddeus Meadows and Michael Ryall critique the theory as being too mechanistic, treating humans like particles in a predator-prey model and ignoring the productive, organizational capacity of elites during integrative phases[33]. They argue that cliodynamics fails to account for human agency and the role of profound ideological shifts that cannot be captured in a wage-to-debt ratio[33].

Engineering Cycle Breakers: The Venetian Anomaly

If cycle theory holds that elite overproduction and factional competition inevitably destroy governance, post-collapse institutional design must focus intensely on mechanisms that thwart elite factionalism without requiring the mass violence of Scheidel's Four Horsemen.

One of the most profound historical anomalies in cycle theory is the Most Serene Republic of Venice, which maintained internal stability, avoided tyranny, and successfully managed extreme elite competition for over 1,100 years, from 697 CE until it was conquered by Napoleon in 1797 CE[34]. The Venetians achieved this incredible longevity through a hyper-complex, mechanical electoral system designed specifically to neutralize dark-triad traits and prevent factional capture during the election of the Doge (the chief magistrate).

Following instances of violent factionalism and attempts at establishing hereditary dictatorships, the Venetians instituted an electoral protocol in 1268 CE that combined multiple alternating rounds of sortition (random selection by lottery) and supermajority approval voting[35]. The mechanism operated through nine distinct, grueling steps within the Great Council[36]:

1. **Lot:** 30 members of the Great Council were chosen at random.
2. **Lot:** The 30 were reduced by random lot to 9.
3. **Vote:** The 9 elected 40 new members (requiring at least 7 of 9 votes for each candidate).
4. **Lot:** The 40 were reduced by random lot to 12.
5. **Vote:** The 12 elected 25 new members (requiring at least 9 of 12 votes).
6. **Lot:** The 25 were reduced by random lot to 9.
7. **Vote:** The 9 elected 45 new members (requiring at least 7 of 9 votes).
8. **Lot:** The 45 were reduced by random lot to 11.
9. **Vote (The Quarantuno):** The 11 nominated the 41 true electors of the Doge.
10. **Final Election:** The 41 electors were locked in strict isolation. Each could nominate candidates. Approval voting was held repeatedly until a single candidate received exactly 25 out of 41 votes[36].

Tripartite Assessment: The Venetian Mechanism Regarding what the arrangement's own people said it did, the Venetians believed this convoluted system allowed divine providence to select the most virtuous candidate while completely eliminating the possibility of bribery, as no one knew who the final electors would be until the day of the vote. Regarding what the historical record shows, the system functioned flawlessly for over seven centuries. It successfully prevented the establishment of a monarchy, stifled violent civil war among the merchant nobility, and allowed Venice to dominate Mediterranean trade. It only failed when confronted by overwhelming external military force in 1797. Regarding what modern scholarship infers, modern game theory and mathematical analysis confirm the genius of this mechanism. Sortition injected extreme unpredictability, rendering it mathematically impossible for a wealthy, Machiavellian elite to bribe or intimidate the final electors[35]. Furthermore, the supermajority thresholds required at the voting stages forced extreme consensus. A highly polarizing, narcissistic demagogue could never secure the required supermajorities; the system inherently favored compromise candidates who were broadly acceptable to all competing factions. The Venetian system successfully managed elite overproduction by continuously cycling power among the aristocracy while completely neutering the ability of any single faction to monopolize the state apparatus[35].

Capture Test: The Sortition-Approval Mechanism The mechanism of capture against a sortition system requires a Machiavellian actor to bypass the lottery by restricting the initial pool of eligibility. If the dark-triad actor can define *who* is allowed to have their name placed in the lottery sack, the randomness is rendered moot. They utilize ideological purity tests or wealth requirements to artificially shrink the underlying council to a monolithic faction. In 1494, Florence attempted to model a Great Council on Venice's system, but the *nominatori* were heavily aristocratic, and the Medici family utilized immense banking wealth and patronage networks to control the underlying pool of eligible citizens, effectively overriding the lottery's

intended randomness[40]. The Venetian system resisted this by making the Great Council hereditary and highly expansive (encompassing up to 2,000 nobles), ensuring that the initial pool was too large and too fractionated for any single family to buy out. In a post-collapse setting without hereditary nobility, strict universal enfranchisement (ensuring every adult in the district gets a lottery ticket) serves the exact same mathematical function to prevent capture.

Scale Ledger: Sortition and Supermajority (Venetian Model)	**Population**	**Operated/Worked?**	**Failed/Never Tried?**	**Reason**
Household	4 to 10	Never Tried	N/A	Overly complex for a group operating on intimate familiarity and shared biological imperatives.
Hamlet/Band	30 to 50	Operated	Fails due to limits	Can use simple random lots for dirty tasks, but multi-stage approval voting is completely unnecessary when the whole band can deliberate directly.
Village	150 to 500	Worked (Sortition)	N/A	Ancient Athens used sortition at the Deme (village) level to select local magistrates

				and representatives, highly effective at thwarting local bullies.
Parish/District	1,500 to 5,000	Worked	N/A	The ideal scale for Citizens' Assemblies (Minipopuli) chosen by lot[40]. Eradicates the massive cost of political campaigning, preventing elite wealth capture.
Town/Watershed	15,000 to 50,000	Worked	N/A	The scale of Renaissance Florence's *Scrutiny* system, which successfully utilized lotteries from a pool of approved candidates to select magistrates[40].
Region/Bioregion	0.5 to 5 million	Worked	Failed via external force	The scale of the Venetian Republic. Worked impeccably for centuries to prevent

				internal capture. Failed only when overwhelmed by massive external military force (Napoleon)[34].
Nation/Continent	50 to 500 million	Never Tried	N/A	Sortition has never been utilized to select the executive branch of a modern nation-state.
Planet	8 billion	Never Tried	N/A	Requires a globally verified identity pool and deeply secure randomization infrastructure, impossible at this scale.

Avoiding the Naturalistic Fallacy

In constructing governance post-collapse, it is vital to avoid the naturalistic fallacy—the assumption that what is "natural" or "primitive" is inherently good, moral, or fair. Ibn Khaldun heavily romanticized the harshness of the *badawa* (rural, tribal) life as inherently virtuous and brave, while viewing urban life as a moral failing[1]. Similarly, contemporary thinkers often romanticize small primitive bands as inherently egalitarian and peaceful.

However, old does not mean good, and small does not mean fair. While small bands possess high *asabiyyah*, anthropological and historical records indicate they also enforce strict conformity through brutal violence, physical ostracization, and high rates of inter-personal homicide. Similarly, the fact that cyclical collapse is a "natural" demographic law (as argued by Turchin) or that horrific violence is the "natural" leveler of inequality (as argued by Scheidel) does not mean surviving human populations should surrender to these brutal cycles. The

primary purpose of understanding SDT and Khaldunian cycles is to construct artificial, mechanical architectures—like the Venetian electoral system—that explicitly block the natural human descent into elite factionalism and mass immiseration. We study the cycles to break them.

Summary of Robust Findings

1. Complex societies follow recurring cycles of integration and disintegration lasting roughly 120 to 300 years.
2. The primary driver of state collapse is "elite overproduction"—an excess of credentialed, wealthy individuals competing for a static or shrinking pool of power positions.
3. Mass immiseration (driven by falling real wages and population overshoot) provides the raw mobilization potential for frustrated counter-elites to trigger revolution.
4. Classical models (*asabiyyah*) accurately describe the decay of social cohesion as systems transition from harsh mutual reliance to secure urban luxury.
5. Historically, substantial reductions in wealth inequality have almost exclusively resulted from catastrophic violence, not peaceful policy reform.
6. The exact timing of state crises is highly correlated with non-linear spikes in the Political Stress Index ($\Psi = MMP \times EMP \times SFD$).
7. Mixed constitutions (democracy balanced with aristocracy and monarchy) delay but do not permanently prevent cyclical collapse.
8. Sortition (random lotteries) combined with supermajority approval voting is mathematically and historically proven to prevent dark-triad state capture.
9. Agricultural surplus inherently produces a non-producing elite class, permanently altering the dynamics of governance from kinship to coercion.
10. Theoretical modeling of macro-history requires massive, structured datasets, though the qualitative coding of cultural variables remains highly contested by traditional historians.

Contested or Open Questions

- **The Agency of Reform:** Can a modern or future elite class actively choose to execute structural, wealth-redistributing reforms (thus avoiding Scheidel's Four Horsemen), or is the cyclical system structurally deterministic?
- **Coding Complex History:** Can nuanced, qualitative historical data (like religious shifts or localized economic practices) truly be quantified for big-data cliodynamics without introducing confirmation bias?
- **Scale Limits of Sortition:** Can a system heavily reliant on random selection for leadership remain logistically competent and reactive at the bioregional or national scale during periods of acute military threat?

Sources to Read in Full

1. Ibn Khaldun (1377). *The Muqaddimah: An Introduction to History*. (Transl. Franz Rosenthal).
2. Peter Turchin & Sergey Nefedov (2009). *Secular Cycles*. Princeton University Press.
3. Peter Turchin (2023). *End Times: Elites, Counter-Elites, and the Path of Political*

Disintegration. Penguin Press.
4. Walter Scheidel (2017). *The Great Leveler: Violence and the History of Inequality from the Stone Age to the Twenty-First Century*. Princeton University Press.
5. Jack A. Goldstone (1991). *Revolution and Rebellion in the Early Modern World*. University of California Press.
6. Sir John Bagot Glubb (1976). *The Fate of Empires and Search for Survival*. William Blackwood & Sons.
7. Polybius (c. 150 BCE). *The Histories*. (Transl. W.R. Paton).

Implementability after the Fall

Minimum Viable Version (Household - 10 people):

- **Mechanism:** Consensus governance and pure *asabiyyah*. The household operates strictly as a single metabolic unit where all labor and calories are pooled.
- **Prerequisites:** A shared hearth, shared physical labor, mutual dependence for caloric survival.
- **First failure to expect:** Dictatorial capture by the physically strongest male or the controller of the primary food cache during a severe caloric deficit.

Minimum Viable Version (Village - 300 people):

- **Mechanism:** Direct assembly with sortition for dirty or administrative tasks. To prevent the emergence of an entrenched elite, the village utilizes a physical lottery (e.g., drawing marked stones from a sack) to randomly select individuals for the adjudication of disputes or the allocation of water and foraging rights. No position is held longer than one harvest cycle.
- **Prerequisites:** A central meeting place (a physical commons), a shared calendar (to track term limits and harvest cycles), a physical token system for lotteries.
- **First failure to expect:** The emergence of specialized warfare. If the village faces raids from external actors, they will voluntarily surrender power to a specialized, permanent martial class (a warlord), instantly creating an elite that will subsequently demand unequal resources and immunity from the lottery.

Minimum Viable Version (District - 3,000 people):

- **Mechanism:** The Venetian Minipopulus. A governing council of 50 is selected entirely by random lot from the adult population. To make executive decisions, the 50 use an approval-voting mechanism where a strict supermajority is required. To prevent elite overproduction, public service is completely uncompensated and heavily burdened with transparency requirements, making it highly undesirable for self-maximizing psychopaths.
- **Prerequisites:** Literacy (to write laws and read ballots), reliable records (a physical census of the 3,000 residents to ensure fair lottery pools), a secure meeting hall to completely isolate the council during votes.
- **First failure to expect:** Verification capture. A charismatic Machiavellian actor will capture the record-keeping apparatus, systematically removing the names of their enemies from the census rolls, thereby ensuring the sortition process only draws from their own faction.

Principles

1. Societal collapse is reliably preceded by the overproduction of elites competing for a static or shrinking pool of power positions.
2. Population growth in excess of economic carrying capacity inevitably depresses real wages and generates volatile mass immiseration.
3. Frustrated, credentialed counter-elites will reliably weaponize the immiserated masses to overthrow incumbent power structures for their own gain.
4. Extended periods of internal peace and systemic stability inherently consolidate wealth upward, increasing economic inequality.
5. Without catastrophic external violence or complete state failure, entrenched elites rarely consent to meaningful wealth redistribution.
6. The introduction of random lotteries (sortition) into electoral mechanics mathematically cripples the ability of dark-triad actors to execute bribery, intimidation, or factional capture.
7. Requiring extreme supermajorities in approval voting neutralizes polarizing demagogues and forces consensus selection.
8. As society transitions from high-risk rural scarcity to secure urban abundance, voluntary social cohesion (*asabiyyah*) inevitably decays into transactional isolation.
9. Institutional complexity and state bureaucracy inherently grow over time, eventually outpacing the fiscal capacity of the underlying tax base.
10. Long-term governance models must physically decouple the mechanism of candidate selection from the mechanism of wealth accumulation to resist psychopathic capture.

Works cited

1. ibn khaldun's cyclical theory on the rise and fall of sovereign powers, https://dergipark.org.tr/en/download/article-file/617161
2. Muqaddimah - Wikipedia, https://en.wikipedia.org/wiki/Muqaddimah
3. Ibn Khaldūn's ʿAsabiyyah and Civilization | PDF | Sociology - Scribd, https://www.scribd.com/document/911710303/Ibn-Khald%C5%ABn
4. Structural-Demographic Theory - Peter Turchin, https://peterturchin.com/research/structural-demographic-theory
5. Peter Turchin: Cliodynamics and the Search for the Mathematical, https://medium.com/@hfwnbq/peter-turchin-cliodynamics-and-the-search-for-the-mathematical-laws-of-history-f3ba4a086d59
6. Linking “Micro” to “Macro” Models of State Breakdown to Improve, https://escholarship.org/uc/item/1xt9k875
7. Book Review: Secular Cycles | Slate Star Codex, https://slatestarcodex.com/2019/08/12/book-review-secular-cycles/
8. Secular Cycles [Course Book ed.] 9781400830688 - DOKUMEN.PUB, https://dokumen.pub/secular-cycles-course-booknbsped-9781400830688.html
9. A Class of People Appears Before Every Civilization Collapses, https://www.youtube.com/watch?v=EMypuqgfCgU

10. A Structural- Demographic Analysis of France (1950-2023), https://www.cliodynamique.org/wp-content/uploads/2025/10/SDT-v3-with-SM.pdf
11. (PDF) The 2010 Structural-Demographic Forecast for the 2010, https://www.researchgate.net/publication/338545369_The_2010_Structural-Demographic_Forecast_for_the_2010-2020_Decade_A_Retrospective_Assessment
12. Political Stress Index of Poland - arXiv, https://arxiv.org/html/2405.01163v1
13. The 2010 structural-demographic forecast for the 2010–2020 decade, https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0237458
14. END TIMES - Penguin Books, https://cdn.penguin.co.uk/dam-assets/books/9780141999289/9780141999289-sample.pdf
15. End Times by Peter Turchin review – can we predict the collapse of, https://www.theguardian.com/books/2023/may/28/end-times-by-peter-turchin-review-elites-counter-elites-and-path-of-political-disintegration-can-we-identify-cyclical-trends-in-narrative-of-human-hope-and-failure
16. The Roman Dominate from the Perspective of Demographic, https://escholarship.org/uc/item/5j8740dz
17. End Times by Peter Turchin - Book Review - The Human Journey, https://humanjourney.us/book-reviews/end-times-peter-turchin-review/
18. A review essay on End Times: Elites, Counter-Elites, and the Path of, https://www.researchgate.net/publication/377027203_A_review_essay_on_End_Times_Elites_Counter-Elites_and_the_Path_of_Political_Disintegration_by_Peter_Turchin_Penguin_Random_House_2023
19. Book Review: End Times by Peter Turchin, https://writeoutloudblog.com/2025/03/02/book-review-end-times-by-peter-turchin/
20. (PDF) Seshat: The Global History Databank - ResearchGate, https://www.researchgate.net/publication/279849138_Seshat_The_Global_History_Databank
21. Theories on socio-political evolution put to the test | EurekAlert!, https://www.eurekalert.org/news-releases/956787
22. Seshat: The Global History Databank - eScholarship.org, https://escholarship.org/content/qt9qx38718/qt9qx38718_noSplash_25190810ebc043598364f8be3b7d26f8.pdf
23. Secular cycles - ResearchGate, https://www.researchgate.net/publication/286531739_Secular_cycles
24. Seshat (project) - Wikipedia, https://en.wikipedia.org/wiki/Seshat_(project)
25. They Call It “Coding Errors”? | Peter Turchin, https://peterturchin.com/they-call-it-coding-errors/
26. Coding culture: challenges and recommendations for comparative, https://www.cambridge.org/core/journals/evolutionary-human-sciences/article/coding-culture-challenges-and-recommendations-for-comparative-cultural-databases/27CCA9E8D72FB095CD3C268332EA8A52
27. A Hit-Piece on Cliodynamics - Peter Turchin,

https://peterturchin.com/a-hit-piece-on-cliodynamics/
28. The Great Leveler: Violence and the History of Inequality from the, https://www.researchgate.net/publication/330018599_The_Great_Leveler_Violence_and_the_History_of_Inequality_from_the_Stone_Age_to_the_Twenty-First_Century
29. (PDF) Walter Scheidel. The Great Leveler: Violence and the History, https://www.researchgate.net/publication/331984107_Walter_Scheidel_The_Great_Leveler_Violence_and_the_History_of_Inequality_from_the_Stone_Age_to_the_21st_Century
30. The Great Leveler Summary | SuperSummary, https://www.supersummary.com/the-great-leveler/summary/
31. the great leveler - Free, http://pinguet.free.fr/scheidel17.pdf
32. Cliodynamics - eScholarship.org, https://escholarship.org/content/qt3mw3d3r7/qt3mw3d3r7.pdf
33. Peter Turchin's 'End Times,' A Review | The Daily Economy, https://thedailyeconomy.org/article/peter-turchins-end-times-a-review/
34. The Early History of Approval Voting - The Center for Election Science, https://electionscience.org/education/early-history
35. Doge of Venice selection process : r/AskHistorians - Reddit, https://www.reddit.com/r/AskHistorians/comments/fpmkk1/doge_of_venice_selection_process/
36. Mechanism Design in the Venetian Republic | Cato Institute, https://www.cato.org/commentary/mechanism-design-venetian-republic
37. M. Cristina Molinari How the Republic of Venice chose its Doge - IRIS, https://iris.unive.it/bitstream/10278/3696103/1/SSRN-id3103618.pdf
38. The election of the Doge of the Republic of Venice - Veneto Inside, https://www.venetoinside.com/en/news-and-curiosities/the-election-of-the-doge-of-the-republic-of-venice
39. How the Venetians elected their Doge. An insanely ... - YouTube, https://www.youtube.com/watch?v=hf4AIqUHwGM
40. Sortition - Wikipedia, https://en.wikipedia.org/wiki/Sortition