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Society

Why reports that Western civilisation will soon collapse are premature

A scientific analysis of history reveals that societies are becoming more resilient to collapse – and shows how to successfully navigate crises, says complexity scientist Peter Turchin

By Peter Turchin

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ANCIENT Egypt, the Roman Empire, the Maya, China's Qing dynasty – these civilisations all shone brightly in their time. Yet, in every case, the glory days were followed by collapse. This seems to be the inevitable trajectory of any culture. What's more, it looks like Western civilisation is experiencing this fate right now. Signs of crisis are obvious,

from rising economic inequality and political polarisation to violent conflict and ecological disasters. Many see this as a global "polycrisis" https://royalsocietypublishing.org/doi/10.1098/rstb.2022.0402 that poses a severe, possibly existential, threat to contemporary societies.

I predicted this would happen. More than two decades ago, I began applying the mathematics of complex systems to history https://doi.org/10.5195/jwsr.2003.248 in an attempt to uncover underlying patterns. Using this approach, I discovered that violent political instability follows two cycles, one peaking every 50 years or so, superimposed over another that does so every two or three centuries.

Applying this to the US and western Europe, I was shocked to discover that these societies were well advanced on the road to crisis /article/mg23731610-300-end-of-days-is-western-civilisation-on-the-brink-of-collapse/. In 2010, in Nature, I forecast that crisis would escalate and peak during the 2020s https://www.nature.com/articles/463608a. A decade later, the evidence supported that prediction https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0237458.

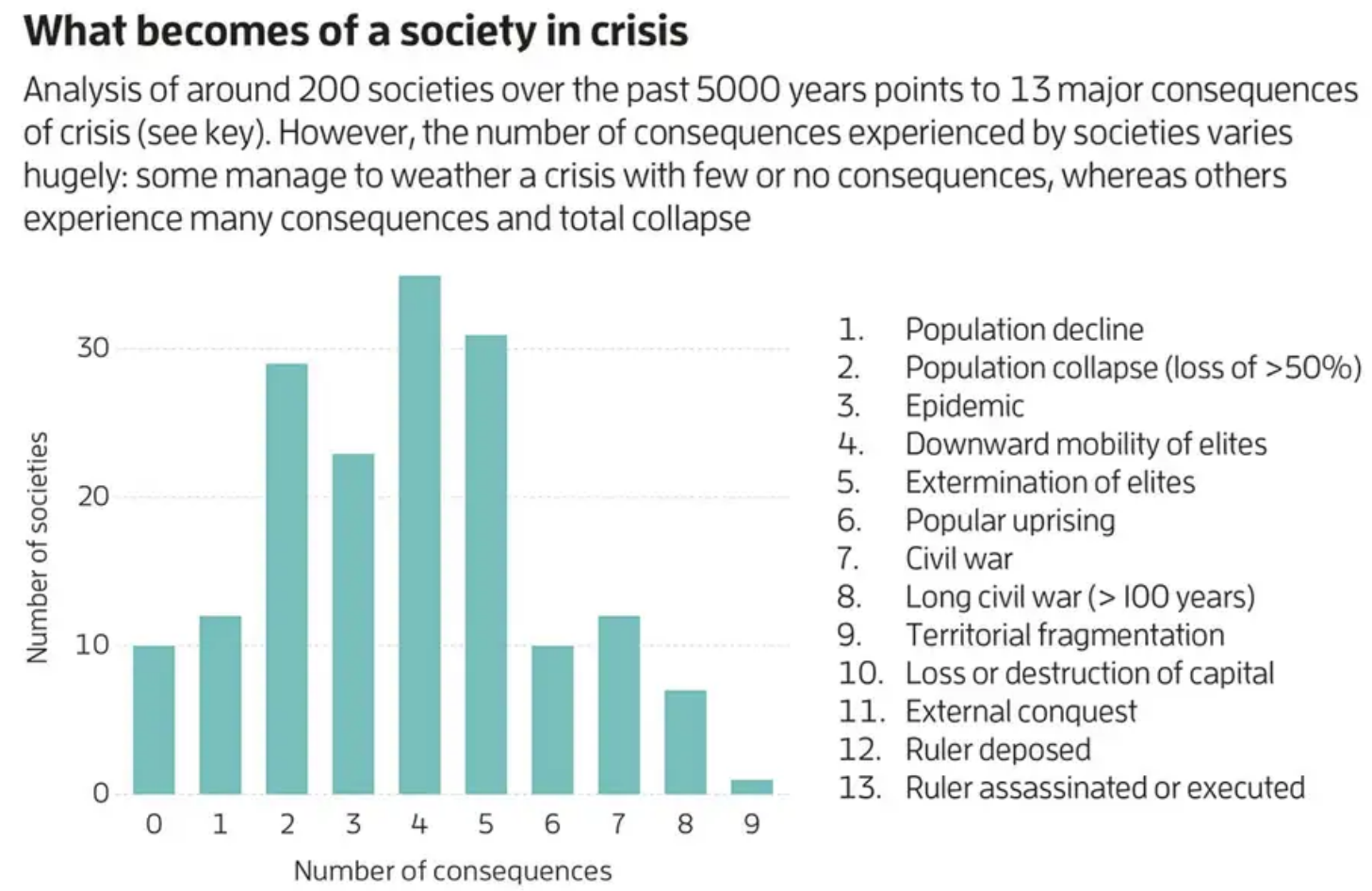
You might have come across some of these ideas recently, following the publication of my book *End Times* https://www.penguin.co.uk/books/447345/end-times-by-turchin-peter/9780241553480. Perhaps unsurprisingly, reviewers used words like "collapse", "revolution" or even "doom" to describe my work. So, it may surprise you to learn that I don't believe collapse is inevitable. In fact, my latest research reveals something fascinating and encouraging: human societies have evolved to become less prone to collapse. Better yet, this insight could help us weather the current crisis https://osf.io/preprints/socarxiv/hyj48/.

For over three decades, my colleagues and I have been gathering data on past societies as they slid into crisis and then emerged from it. This is painstaking work because we need information about dozens of quantifiable variables that describe the key characteristics of social systems and capture their dynamics. Where direct indicators aren't available – the further you go back into the past, the more common this is – we must find indirect indicators to act as proxies. Currently, we have data on nearly 200 cases of crisis covering the past 5000 years, and we have used this to compile a massive historical database called CrisisDB https://seshatdatabank.web.ox.ac.uk/crisis-and-recovery-database. With this, we can start to look for patterns.

Crisis database

One surprise is how few variables are needed to determine whether a society is sliding into crisis. Public debt, loss of state legitimacy and geopolitical and geo-economic pressures from abroad all play a role. But the two main indicators of impending crisis are "popular immiseration" – meaning stagnating or even declining well-being of the majority of the population – and "elite overproduction", which refers to a society producing massively more elite wannabes than the number of power positions available to them. These two indicators are linked because, to effectively challenge the status quo, popular discontent (feeding off immiseration) needs to be channelled and organised by dissident elites (those frustrated in their quest for influence and wealth).

Although the lead-up to crisis is quite stereotypical, our analysis reveals that there is no such thing as a typical collapse. CrisisDB allowed us to identify a total of 13 consequences of collapse, and our analysis shows that there is enormous variability in how crises play out 🔗 https://royalsocietypublishing.org/doi/10.1098/rstb.2022.0402 (see graphic, below). The most common ways societies emerge from their "end times" are through bloody civil war or violent revolution. Other possible outcomes include severe demographic consequences, even resulting in a loss of the majority of a population, rulers being deposed or killed, and governing elites being overthrown by a social revolution – or sometimes exterminated. Crisis can also lead to territorial fragmentation, the destruction or abandonment of the capital, or conquest by external enemies. Utter collapse (when a society crumbles along many dimensions) is quite rare. Instead, a few dimensions tend to dominate. And in some cases, leaders and populations manage to pull together and navigate social upheaval in a non-violent way.



Collapse isn't inevitable. Let's make this result more concrete by considering a wave of social instability that swept the globe two centuries ago. Although crises are mainly driven by internal factors, no country lives in complete isolation, so wider influences – geopolitical, economic and cultural – tend to bring crises in different states into imperfect synchrony. In my previous work, I have found that such "ages of discord 🔗 https://www.amazon.com/Ages-Discord-Peter-Turchin/dp/0996139540/" recur approximately every two centuries. Today, we are living in our own age of discord. The previous one, the age of revolutions, peaked during the middle of the 19th century (although aftershocks lasted until the early 1900s). It included the revolutions of 1848, which swept through Europe from France to Germany, Austria, Italy and a host of smaller nations. Also, starting in 1850 and peaking during the 1860s, there was turmoil in China, Russia and the US. Essentially, all large nations in the world were affected by this wave of instability. Nevertheless, the severity of outcomes differed wildly.

The worst episode was the Taiping Rebellion, which occurred in Qing China between 1850 and 1864. Some 20 to 30 million people died 🔗 https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0289748, making it the bloodiest civil war in human history. Likewise, the American civil war that ran from 1860 to 1865 is the bloodiest war in US history, killing over 600,000 people. On the other hand, the British Empire, while

experiencing much unrest during the Chartist era of 1838 to 1857, managed to avoid a violent revolution. Instead, the governing elites cooperated and adopted a set of reforms that defused the crisis, such as allowing workers to organise and extending the right to vote. Another large empire, Russia, also avoided collapse. It slid into crisis during the 1850s, yet despite a humiliating defeat in the Crimean war, mounting peasant unrest and a bombing campaign by anarchists, things ended in a relatively non-violent way, with the government adopting a set of reforms, including the abolition of serfdom.

In the current age of discord, this historical evidence is heartening. But our latest analysis of CrisisDB sends a message that is even more positive. When my colleagues and I looked at how crises played out in different societies throughout the 5000 years encompassed by the database, we found that early states were much more fragile than those that followed 🔗 https://osf.io/preprints/socarxiv/hyj48/. There is a strong empirical pattern: as we get closer to today, social and political breakdowns resulting from crisis become less severe.

Population decline

To see this in quantitative terms, let's focus on one dimension of collapse, population decline. This is warranted because the size of a society is perhaps its most fundamental characteristic, and because population collapses reflect untold human misery as people die due to violence, epidemics and famines, or become refugees. Furthermore, famous examples of collapse in past societies typically involved drastic decreases in the population. The end of the Maya civilisation is a good example – although it was only with the advent of modern technology, such as lidar, that archaeologists discovered that the jungles around abandoned Maya centres were once packed with houses, fields and roads.

What do we see when we measure the severity of past crises by the extent of population decline? First, take the Taiping Rebellion again. It reduced the population of China by 13 per cent – from 412 million in 1850 to 358 million in 1870. Despite the scale of this loss, it pales into insignificance when compared with the Han dynasty's collapse in the year AD 220. At its peak, the dynasty's population was about 60 million. After the collapse, it was less than 20 million.

The rise and fall of the mysterious culture that invented civilisation

Proto-cities built from 6200 years ago in eastern Europe upend our ideas about when civilisation began and why people made the move from rural to urban living

/article/mg24933230-900-the-rise-and-fall-of-the-mysterious-culture-that-invented-civilisation/

End times of subsequent dynasties that ruled China – the Tang, Song and Ming – also involved substantial population loss, but the trend was for the severity of these declines to diminish with time. Or take what is now Germany. As mentioned earlier, it was convulsed by revolution in 1848. But this wave of instability had no serious demographic consequences. Contrast that with the preceding age of discord, which occurred in the 17th century. Starting in 1618, the thirty years' war raged in Europe, killing millions and leaving some regions of Germany with just 50 per cent of their former population.

These examples illustrate the overall trend during human history. But our analysis reveals more. The reason human societies became more resilient is that they became more complex – albeit, in a certain way. This sounds surprising: it is a common trope in archaeology that complex societies are highly prone to collapse. Indeed, in his influential

book *The Collapse of Complex Societies* 🔗 https://www.cambridge.org/us/universitypress/subjects/archaeology/archaeological-theory-and-methods/collapse-complex-societies Joseph Tainter 🔗 https://scholar.google.com/citations?user=sbEDS84AAAAJ&hl=en at Utah State University argues that it is precisely the accumulation of complexity that undermines stability. But that isn't what our analysis reveals.

To understand this, we need to distinguish between two dimensions of complexity 🔗 https://www.science.org/doi/10.1126/sciadv.abn3517. The first is scale. Most simply, it is population size, the number of people governed by a state or empire. But there are other aspects of scale, including a state's territory, or how many people live in the capital and other cities. As the scale of a society increases, it becomes harder to govern. Regions away from the capital are more prone to separatism and secession. Tensions arise between different ethnic groups within large multiethnic empires. Because their scale has tended to increase since states emerged some 5000 years ago, this trend should have resulted in them becoming more fragile.

The Roman Empire eventually collapsed but modern states are less fragile
Sergey Borisov/Alamy

Complex societies

But a second dimension of complexity provides a countervailing trend. States didn't just increase in scale, they also evolved institutional complexity. As a result of interstate competition and conflict, they acquired more sophisticated systems of information processing, economic exchange and governance. State bureaucracies became more effective and so did the constraints on rulers and elites. Like any form of evolution, this entailed survival of the fittest. Put simply, states that failed to acquire this sort of complexity collapsed and their territories and populations were taken over by more capable rivals. Thus, what makes societies better able to resist internal and external shocks is "useful complexity" – essentially, the accumulation of social technologies that make them better organised and more internally cohesive and functional.

Taking this idea further, my team recently carried out a major new analysis of Neolithic societies 🔗 https://www.nature.com/articles/s41598-023-35920-z as they spread from Asia through Europe between 9000 and 5000 years ago. These first farmers of Europe lived in societies that were simply organised. Essentially, each village was its own independent polity. There was no writing, no bureaucrats and, apparently, no hereditary rulers (those became prominent during the subsequent Bronze Age). Yet, these pre-state societies weren't immune to demographic collapse. Wherever we have detailed information on population dynamics, we observe that peaks were typically followed by declines in which more than half of the population disappeared and the whole region was sometimes abandoned.

The societies proving that inequality and patriarchy aren't inevitable

Today's complex societies are pretty homogeneous, but experimental cultures, past and present, teach us how to think more creatively about the way we live

/article/0-the-societies-proving-that-inequality-and-patriarchy-arent-inevitable/

This is a different kind of collapse than the multidimensional process we identified in complex human societies, organised as states. Furthermore, the causes of these drastic population declines are debated: some researchers invoke climatic change, others blame soil exhaustion, yet others look for evidence of an epidemic. Our analysis suggests violent conflict was a major culprit. Whatever the causes, accumulating evidence shows that demographic collapses weren't rare in prehistory. As we acquire quantitative data on more regions, it is beginning to look like such drastic population declines are the rule rather than the exception.

The implications of this study, taken together with the results of our analysis of CrisisDB, are startling. The long arc of human cultural evolution /article/mg25834450-800-the-civilisation-myth-how-new-discoveries-are-rewriting-human-history/ over the

past 10,000 years has resulted in increasingly larger-scale societies. Such societies attempted to suppress internal violence, with varying degrees of success. Initially, they were quite fragile and readily descended into civil wars that tore them apart. But they gradually evolved more and better institutions that increased their resilience against internal and external shocks. Collapse became less likely.

I believe we can exploit this finding to help us achieve a better outcome in the crisis that is currently rocking Western civilisation. Modern societies already possess a lot of "useful complexity", but we need to bolster the practices and institutions we know will make us most resilient to collapse (see "How to avert a crisis" below #DeepDive-1). Also, societies are more interconnected and the problems we face are more global than ever in human history. We must reflect this in the social complexity we embrace if we are to rise to such challenges as climate change, war and inequality.

Time is running out, so we can't simply wait for cultural evolution to solve this for us. What I have learned from detailed analysis of past success stories – ones where states avoided a descent into civil war and resolved their crises through the right mix of policies and reforms – is that, ultimately, it takes action by key individuals. To avoid collapse, elites must be made to care about the common good. And that requires two things: pressure from grassroots social movements and selfless individuals to lead them.

How to avert a crisis

Western civilisation is in trouble, but an analysis of history reveals how we can avoid collapse (see main story). The trick is to bolster the right kind of social complexity – in particular, institutions and policies that boost the well-being of the majority of people and reduce conflict between elites:

1. Progressive taxation reduces the creation of too many wealthy elites and the economic impoverishment of the rest

2. A universal right to vote and the election of public officials constrain arbitrary and selfish behaviour by rulers

3. Labour-protecting institutions, such as unions, and a minimum wage decrease economic inequality

4. A welfare state equitably promotes the well-being of all citizens

5. International cooperation through the United Nations and its agencies, such as the Intergovernmental Panel on Climate Change, helps address global challenges

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