

H H E U R I S T I C S

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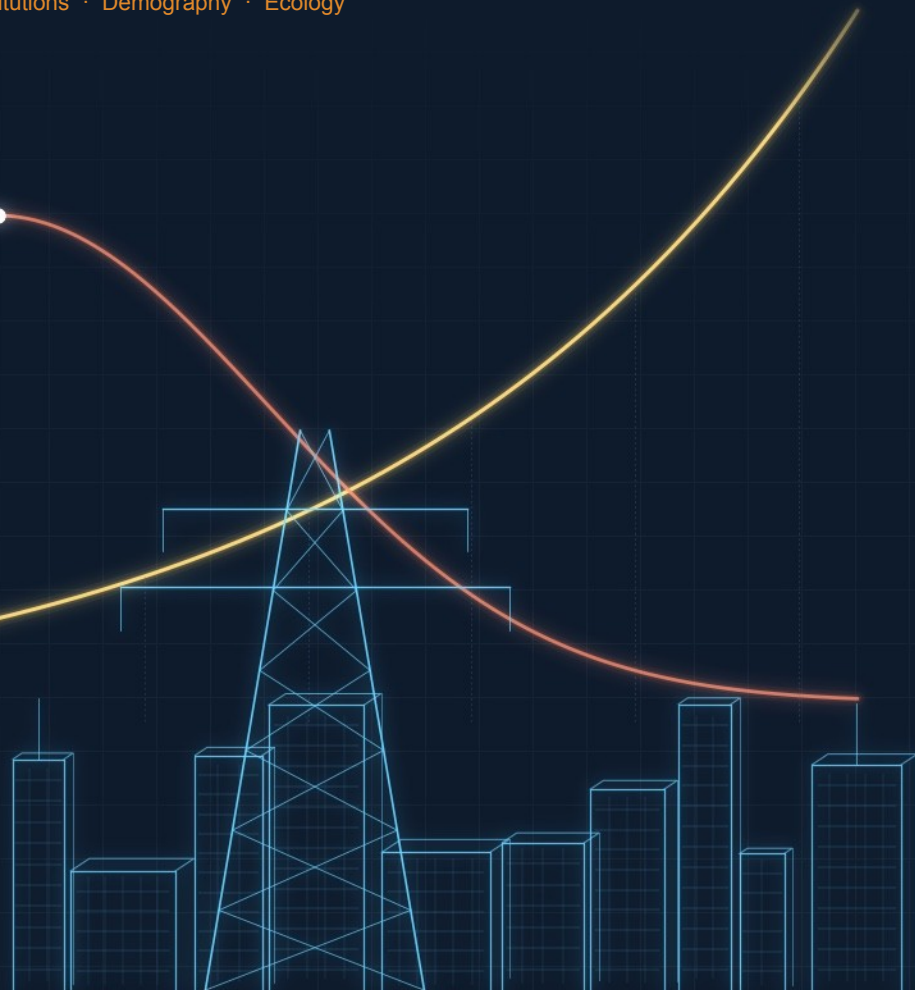
The Post-Peak Civilization Thesis

Advancing Capability, Asynchronous Peaks, and the
Long-Horizon Question of Civilizational Decline

Biology · Capability · Culture · Cohesion · Institutions · Demography · Ecology

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H Heuristics · Flagship Research Report



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About This Report

This report examines the **post-peak civilization thesis**: the proposition that humanity, or at least the societies that led the modern world, may have passed a high point in certain forms of cultural achievement, social cohesion and institutional stability, even as scientific knowledge and technological capability continue to advance. The idea is old in one sense and new in another. It is old because historians and philosophers from [Ibn Khaldun](#) to [Oswald Spengler](#) argued that civilizations rise, flourish and decay. It is new because, for the first time, the evidence suggests that the different dimensions of a civilization can move in opposite directions at once. A society can become dramatically more capable, in computing, medicine, energy and knowledge, while becoming less trusting, less fertile, less able to afford its own housing and less sure of what it shares.

The report's organizing idea is **asynchrony**. Biological evolution, cultural achievement, demographic change, institutional development and technological capability run on different clocks and are driven by different forces. There is no reason to expect them to peak at the same time, and good evidence that they have not. World fertility peaked in 1963; American trust in the federal government in 1964; the largest shared television audiences in the early 1980s; the share of humanity living in democracies around 2001; the populations of Japan, Europe and China between 2009 and 2021; and world population is projected to peak in the 2080s. Meanwhile computing power, genome sequencing, solar energy and artificial intelligence show no peak at all. The post-peak thesis is therefore not a claim that everything is getting worse. It is a framework for testing whether particular dimensions of civilization have peaked at different times, and whether progress in one dimension conceals regression in another.

The report builds on earlier H Heuristics work on [the architecture of civilization](#), which examined the energy, coordination and interdependence on which complex societies depend, and on [the polycrisis apocalypse](#), which examined how interacting pressures can erode those foundations. Where those reports asked what holds civilization up and what could bring it down, this one asks a narrower and more uncomfortable question: whether some of what earlier generations valued has already passed its high-water mark, and what that would mean for the century ahead.

The objective is not to mourn a lost golden age. Much of the writing on decline is nostalgia dressed as analysis, and the report takes that danger seriously: it devotes a full section to the case against the thesis and presents an original model of how cultural memory manufactures the illusion of a golden age. It is written for researchers, policymakers, students and general readers, and assumes no technical background.

How to read this report

Each section starts on a new page and can be read on its own. The report has four parts (Figure 1). Sections 1 to 3 set out the question, review the ideas it draws on and build the framework of asynchronous peaks, including a method for dating a peak and five tests a claimed peak must pass. Sections 4 to 11 examine eight dimensions in turn: biology, science and technology, culture, social cohesion, institutions, demography, material affordability and ecology. Sections 12 to 14 synthesize: whether post-peak is a Western or a global condition, the mechanisms that drive capability and cohesion apart, and the strongest arguments against the thesis. Sections 15 and 16 set out five pathways to 2100 and beyond and give the report's verdict.

PART I · FRAMEWORK

- 01 The Post-Peak Question**
Definitions, the thesis, and what it does and does not claim
- 02 Intellectual Foundations**
Cyclical, complexity, stagnation and social-capital theories, and their critics
- 03 The Asynchrony Principle**
Why peaks need not coincide; how a peak is dated and tested

PART II · THE DIMENSIONS

- 04 Biological Evolution Has No Summit**
Evolution has no direction; what health phenotypes show
- 05 The Capability Curve**
Exponential capability alongside slowing productivity and disruption
- 06 The Cultural Peak Hypothesis**
Shared recognition versus quality; fragmentation; nostalgia
- 07 The Erosion of Social Cohesion**
Trust, belonging, religion, loneliness and polarization
- 08 Institutional Stability Under Strain**
Confidence, democracy, state capacity and the cost of complexity
- 09 The Demographic Turning Point**
Fertility below replacement, the population peak and ageing
- 10 The Affordability Paradox**
Cheap gadgets, dear homes: Baumol's cost disease
- 11 The Ecological Ledger**
Climate, biodiversity and the planetary boundaries

PART III · SYNTHESIS

- 12 The Great Redistribution**
Is post-peak a Western condition or a global one?
- 13 Why Capability and Cohesion Diverge**
Seven mechanisms that drive capability and cohesion apart
- 14 The Case Against the Thesis**
Nostalgia, measurement, survivorship and progress

PART IV · FUTURES

- 15 Pathways to 2100 and Beyond**
Five pathways and the indicators that tell them apart
- 16 Conclusion**
Verdict, evidence grades and research agenda

Figure 1. The structure of the report. Three framework sections establish the question and the method, eight examine the dimensions of civilization one at a time, three synthesize the evidence and test it against its strongest objections, and two set out pathways and conclusions.

Source: *H Heuristics*.

Blue underlined text is a hyperlink. Where a specific scientific result is cited, the link goes to the DOI record of the peer-reviewed source; every DOI was checked against its registered title before publication, and the full list appears in the References. Where a statistic comes from a survey organization, statistical agency or international body, the link goes to that organization's release or data page. Where a concept or historical figure is introduced, the link may go to a reference article.

Evidence grades

Claims are graded on the four-level scale used across H Heuristics reports. The grade describes the state of knowledge, not the importance of the claim.

Table 1. Evidence grades used in this report

Grade	Meaning	Example from this report
A: Established	Confirmed by multiple independent lines of evidence and by official statistics or major scientific assessments.	Fertility is below replacement in most of the world; frontier computing capability is still rising exponentially
B: Well supported	Strong evidence from several lines of work, with unresolved detail or some dissent.	Shared mass audiences have fragmented; trust in institutions has fallen in many rich democracies
C: Plausible or contested	A credible argument and partial evidence; specialists disagree about size or mechanism.	Science has become less disruptive in a way that matters for long-run progress
D: Speculative	A hypothesis or scenario offered for evaluation, labelled as such wherever it appears.	The intrinsic quality of art and culture has declined

A single topic can carry several grades. That the largest shared television audiences are smaller than in the 1980s is graded A; that shared recognition of cultural figures has declined is graded B; that cultural quality has declined is graded D.

A note on the figures and calculations

The report contains 26 figures and 20 tables. Twelve figures chart published data, drawn from [Our World in Data](#) extracts of the UN World Population Prospects 2024, the V-Dem Regimes of the World classification, the Living Planet Index, the World Values Survey, HadCRUT5 temperatures, World Bank poverty estimates and long-run series on computing, genome sequencing, solar power and artificial intelligence; from US Bureau of Labor Statistics and Census Bureau series distributed by [FRED](#); from the [IMF World Economic Outlook](#); and from the [Pew Research Center](#) trust series. Seven figures present original calculations written in Python for this report: a peak-dating analysis of eighteen indicators; capability and cohesion composites for the United States; a survivorship model of cultural memory; a model of attention fragmentation; a cohort projection of populations held at low fertility; a model of diminishing returns to complexity; and a two-variable model of capability and cohesion under five scenarios. Each caption states what was computed and with which assumptions. The models are illustrative. They show how mechanisms behave, not what will happen. The remaining figures are diagrams drawn for this report.

How to cite

Hughes, H. (2026). *The Post-Peak Civilization Thesis: Advancing Capability, Asynchronous Peaks, and the Long-Horizon Question of Civilizational Decline*. H Heuristics Flagship Research Report. The report synthesizes published research and presents original calculations and propositions, which are labelled as such.

Executive Summary

Abstract

Most accounts of the human future assume that the dimensions of progress move together: that a society which becomes richer and more technologically capable will also become healthier, more cohesive, more creative and more secure. For most of the modern era that assumption held well enough. This report argues that it no longer holds, and examines what follows. It develops the **post-peak civilization thesis**: that humanity may be entering a period in which technological capability continues advancing while other dimensions of civilization stagnate or deteriorate. The report dates the peaks of eighteen indicators across demography, institutions, culture, ecology, global position and capability, and finds that they are spread across six decades, from the early 1960s to the 2020s, with a projected population peak in the 2080s; the capability indicators show no peak at all. It examines eight dimensions in turn and grades the evidence for a peak in each. It identifies seven mechanisms through which advancing capability can itself erode cohesion, affordability and shared culture. It tests the thesis against its strongest objections, including nostalgia, survivorship bias in cultural memory and the real gains of the past half-century. And it sets out five pathways to 2100. The report concludes that the strong form of the thesis, that civilization as a whole has peaked, is not supported. A weaker and more precise form is well supported: several dimensions that earlier generations valued have passed their high points in the societies that led modernity, and progress in capability is masking regression in cohesion, reproduction, affordability and ecological stability. Whether that regression is a transition or a decline depends on choices still open.

The central thesis

Central thesis. Technological progress does not guarantee civilizational continuity. Because the dimensions of civilization peak at different times and for different reasons, the future may be far more advanced in capability without reproducing the social order, shared culture and institutional confidence that preceded it.

The thesis makes three testable claims. First, that peaks are **asynchronous**: the dimensions of civilization reached their maxima at different times, and some have not peaked at all. Second, that capability and cohesion have **decoupled**: in the societies examined, measures of technological and scientific capability have continued to rise while measures of trust, belonging, reproduction and affordability have fallen, so that progress in one dimension now conceals regression in another. Third, that the decoupling is at least partly **endogenous**: some of the forces that drive capability forward, such as uneven productivity growth, the abundance of information, mobility and the rising complexity of modern systems, are the same forces that wear down the social foundations on which capability rests. Each claim is examined against evidence and graded.

The thesis in numbers

Table 2. Selected indicators of asynchronous peaks

Indicator	Peak, then latest	Source
World total fertility rate	5.31 births per woman (1963); 2.25 (2023)	UN WPP 2024 via Our World in Data
South Korea total fertility rate	about 6 (1960); 0.72 (2023), 0.75 (2024)	Statistics Korea, via Al Jazeera
World population	projected peak of 10.3 billion in 2084	UN WPP 2024
Americans trusting the federal government most of the time	77% (1964); 17% (2025)	Pew Research Center
Average confidence in nine US institutions	48% (1979); 28% (2025)	Gallup
Americans belonging to a church, synagogue or mosque	about 70% (1937–1999); 47% (2020)	Gallup
Largest audience for a US television series finale	106 million (<i>M*A*S*H</i> , 1983); 13.6 million (<i>Game of Thrones</i> , 2019)	Nielsen, compiled by Wikipedia
Share of world population living in democracies	54% (2001); 26% (2025)	V-Dem via Our World in Data
G7 share of world output (PPP)	about 52% (1980s); 29% (2024)	IMF World Economic Outlook
US median house price ÷ median household income	3.6 (1984); 4.7 (2025)	Census Bureau via FRED
Monitored wildlife populations since 1970	–73%	WWF Living Planet Report 2024
Transistors per microprocessor	×25,213,997 (1971–2021); no peak	Our World in Data
Cost of sequencing a human genome	÷181,585 (2001–2022); no floor yet	NHGRI via Our World in Data

Peaks are the maximum of each series over its observed period; some series begin after their true peak. The indicators measure different things in different places and are listed together to show the spread of peak years, not to be combined.

Principal findings

- 1. Civilizational peaks are asynchronous (Grade A).** Of eighteen indicators dated for this report, fourteen have peaked, at years spread from 1950 to 2021 with a projected population peak in 2084, and four, all measures of capability or material welfare, have not peaked at all (Figure 4). Different dimensions run on different clocks, from years for technology to generations for demography and millennia for biology (Figure 3). There is no single civilizational summit to locate.
- 2. Capability has not peaked, but its yield per unit of effort has (Grade B).** Transistor counts have risen 25,213,997-fold since 1971 and the cost of sequencing a genome has fallen 181,585-fold since 2001 (Figure 6). Yet US productivity growth averaged 2.8 per cent a year in 1948–73 and 1.5 per cent in 2005–19 (Figure 7), research productivity has fallen steadily, and new papers and patents have become markedly less disruptive. The frontier advances; the return on pushing it falls.
- 3. Biological evolution has no summit (Grade A).** Evolution has no direction or peak. What has plateaued or reversed in some rich countries are environmentally driven traits: adult height, cognitive test scores among recent cohorts, and possibly sperm counts. These are signals about environments and ways of life, not about human biological destiny.

4. **Shared culture has passed its peak; cultural quality has not been shown to decline (Grades B and D).** The largest US series finale drew 106 million viewers in 1983 and 13.6 million in 2019 (Figure 8); in a simple model, multiplying the number of channels from three to a hundred thousand cuts the maximum share of attention any single work can capture from about 55 per cent to about 8 per cent (Figure 9). What has declined is shared recognition, not demonstrably quality, and the report's survivorship model shows why every generation's golden age appears to lie 25 to 35 years in the past (Figure 10).
5. **Social cohesion has eroded in the United States and parts of the rich world (Grade B).** Trust in the federal government fell from 77 per cent in 1964 to 17 per cent in 2025 (Figure 12); church membership fell below half; time spent with friends fell by roughly two-thirds between 2003 and 2020. The pattern is pronounced in the United States, weaker or absent in parts of Northern Europe, and not universal.
6. **The democratic high-water mark has probably passed for now (Grade B).** The share of the world's population living in democracies peaked at about 54 per cent in 2001 and stood at about 26 per cent in 2025, partly because of India's reclassification; the share in liberal democracies fell from 17.5 to 7.5 per cent (Figure 13).
7. **Fertility has passed its peak almost everywhere and population will follow (Grade A).** World fertility fell from 5.31 births per woman in 1963 to 2.25; South Korea's fell to 0.72 (Figure 15). In the report's cohort projection, a population held at South Korea's fertility falls to 14.6 per cent of its starting size within a century, with 144 people aged 65 and over for every 100 of working age (Figure 17).
8. **Capability has made gadgets cheap and the foundations of family life dear (Grade B).** Between 2000 and 2024, US consumer prices for computers fell 92 per cent and for toys 74 per cent, while prices for hospital services rose 243 per cent and for tuition and childcare 166 per cent (Figure 18). This is Baumol's cost disease operating on the goods that matter most to forming a household.
9. **Ecological stability peaked before the data begin (Grade A).** Monitored wildlife populations have fallen by an average of 73 per cent since 1970 and seven of nine planetary boundaries are now transgressed (Figure 19). Capability has risen in step with material throughput, not in spite of it.
10. **Post-peak is primarily a condition of the societies that led modernity (Grade A–B).** The G7 share of world output at purchasing-power parity fell from about 52 per cent in the 1980s to 29 per cent in 2024, while China's rose from 2 to 19 per cent; China now files about half the world's patent applications (Figure 20). Yet China's population and fertility have also peaked, so the pattern is spreading with modernity itself.
11. **Capability and cohesion have decoupled (Grade B).** In the report's US composites, capability rose from 0 to 1 on its rescaled range between 1971 and 2024 while a cohesion-and-reproduction composite fell from 1.00 to 0.14 (Figure 21). Seven mechanisms, from Baumol's cost disease to the attention economy and the overhead of complexity, link the two (Figure 22).
12. **The strong thesis fails; the asynchronous thesis survives (Grade B).** Extreme poverty fell from about 43 per cent of humanity in 1990 to about 10 per cent, and child mortality more than halved (Figure 23). Civilization as a whole has not peaked. But when each claimed peak is put through the five tests set out in Section 3 (Figure 5), confirmed peaks remain in fertility, institutional confidence, shared culture, ecological stability and Western global share (Figure 24).

The verdict

The post-peak civilization thesis is best understood not as a prophecy of decline but as a correction to an assumption. The assumption is that progress is a single quantity that rises together across every

dimension of human life. The evidence reviewed here shows that it is not. Capability, the ability to compute, cure, produce and know, continues to compound. Cohesion, reproduction, affordability, shared culture and ecological stability have each passed their high points in the societies that led the modern world, at different times and for partly different reasons. The question for the twenty-first century is therefore not whether humanity will keep advancing, which it almost certainly will, but whether it can rebuild the social foundations of a technological civilization quickly enough that advance continues to serve the people living in it. Of the five pathways examined in Section 15 (Figure 25), the most likely on current trends is **decoupled advance**; the most desirable, **renewal**, requires deliberate investment in the dimensions that markets and technologies do not automatically sustain.

In one sentence. Humanity has not passed its peak, but several of the things earlier generations valued most have, and the brilliance of our machines is making that harder, not easier, to see.

01

INTRODUCTION



1. The Post-Peak Question

1.1 A paradox of progress

A person born in a rich country in 1960 has lived through the most rapid expansion of human capability in history. In their lifetime the number of transistors on a single chip has risen from a few thousand to tens of billions; the cost of reading a human genome has fallen from about a hundred million dollars to a few hundred; a solar panel has become cheaper than almost any other source of new electricity; and software can now write, translate, diagnose and reason at a level that would have seemed fantastical to their parents. Life expectancy across the world has risen from about 46 years in 1950 to about 73.2 years today. By the measures of capability that modern civilization uses to judge itself, the trajectory is not merely upward but accelerating.

The same person has also lived through changes that are harder to describe as progress. In the United States, the share of people who say they trust the federal government to do what is right fell from about three-quarters to under one-fifth. Membership of churches and civic associations fell by roughly a third. Their children married later and had fewer children of their own, and in much of East Asia and southern Europe fertility fell to levels at which each generation is barely more than half the size of the one before. The cost of a home, a university education, childcare and hospital care rose far faster than incomes, while the cost of a television fell to almost nothing. The great shared cultural moments of their youth, when a hundred million people watched the same programme on the same evening, became rare. Wildlife populations fell by about three-quarters.

This is the paradox that motivates the report. A society can become more technologically sophisticated while experiencing declining institutional trust, unaffordable living, environmental degradation, demographic strain and cultural fragmentation. The paradox is not new to observers: economists have written about the great stagnation, sociologists about the decline of social capital, demographers about the low-fertility trap and political scientists about democratic backsliding. What has been missing is an account that puts these strands together and asks what they mean as a whole. Are they separate problems with separate causes, or symptoms of a single condition? Are they temporary, the turbulence of a transition to a new kind of society, or structural, the early signs of a long decline? And are they confined to the societies that led the modern world, or the leading edge of a global pattern?

The question. Has humanity passed the peak of a particular civilizational order, and if so, which parts of it, when, and is the passage reversible?

1.2 What a peak is, and what it is not

The word *peak* is used loosely in public debate, and much confusion about decline comes from mixing up different things it can mean. A peak in the **level** of an indicator, such as the size of a population, is

different from a peak in its **rate of growth**: world population growth peaked in the 1960s, but population itself will keep rising for another sixty years. A peak in an **absolute** quantity, such as the number of great scientists alive, is different from a peak in a **per-capita** quantity, such as the number of great scientists per million people; the first can rise while the second falls. A peak in a **share**, such as the West's share of world output, says nothing on its own about the absolute level, which may still be rising. And a peak in a **measured** quantity may be an artefact of how it is measured, as when a new definition, survey method or reclassification produces an apparent turning point.

This report uses the terms in Table 3 throughout. The most important distinction is between a **peak**, after which an indicator falls and stays below its maximum for an extended period, and a **plateau**, in which it stops rising but does not fall. Many indicators that are said to have peaked have in fact plateaued. The report reserves the phrase **post-peak** for a dimension in which there is good evidence of both a sustained decline from a maximum and a structural mechanism that makes early reversal unlikely.

Table 3. Key terms used in this report

Term	Meaning in this report
Dimension	A distinct aspect of civilization with its own indicators, drivers and time scale: biology, capability, culture, cohesion, institutions, demography, material life and ecology
Peak	The maximum of an indicator, followed by a decline that persists beyond its historical range of fluctuation for at least a decade
Plateau	A period in which an indicator stops rising without falling decisively
Post-peak dimension	A dimension with a confirmed peak and a structural mechanism that makes early reversal unlikely
Asynchrony	The tendency of different dimensions to peak at different times, or for some to peak while others continue to rise
Capability	The technical, scientific and productive power of a society: what it can compute, make, cure and know
Cohesion	The trust, shared identity, belonging and willingness to cooperate that allow a society to act collectively and to reproduce itself
Decoupling	A sustained period in which capability rises while cohesion or another dimension falls
Civilizational order	The particular combination of institutions, cultural forms, family structures and global position that characterized a society at its height, as distinct from civilization in general

The distinction between a civilizational order and civilization in general matters. The thesis can be true of the first without being true of the second.

1.3 Three versions of the thesis

The post-peak thesis comes in at least three versions, which differ sharply in what they claim and how much evidence they require (Table 4). The **strong version** holds that human civilization as a whole has passed its peak and is now in decline. It is the version most often found in popular writing about collapse, and it is the hardest to defend: by many important measures, including longevity, child survival, literacy, poverty and access to knowledge, humanity as a whole has never been better off, and the trend in most of them is still upward.

The **Western version** holds that the societies of Western Europe and North America, which led the modern world for two centuries, have passed the peak of their relative power, cultural centrality and internal cohesion, while other regions rise. It is better supported, at least for relative economic and demographic weight, and Section 12 examines it in detail. But it risks mistaking a redistribution for a

decline, and it cannot explain why the same patterns of falling fertility, ageing and fraying trust are appearing in East Asia, Latin America and elsewhere as those regions modernize.

The **asynchronous version**, which this report develops, holds that the different dimensions of civilization peak at different times; that capability can continue to rise while cohesion, reproduction, affordability, shared culture and ecological stability fall; and that progress in one dimension can conceal regression in another. It does not require that civilization as a whole has peaked. It requires only that the dimensions have come apart, which is an empirical question that can be tested indicator by indicator.

Table 4. Three versions of the post-peak thesis

	Strong version	Western version	Asynchronous version
Core claim	Civilization as a whole has peaked	The West has passed the peak of its power, cohesion and cultural centrality	Dimensions peak at different times; capability can rise while cohesion falls
Unit of analysis	Humanity	Western societies	Each dimension separately
Key evidence	Collapse indicators, resource limits	Shares of output, population, science; trust and fertility	Dated peaks of many indicators; decoupling of composites
Strongest objection	Most welfare measures still rising	Redistribution is not decline; patterns spreading beyond the West	Possible nostalgia, measurement artefacts, cyclical troughs
Verdict of this report	Not supported (Grade D)	Supported for relative weight; partly for cohesion (Grade A–B)	Supported for several dimensions (Grade B)

The three versions are not exclusive. The asynchronous version can incorporate the Western one as a special case, and could in principle lead to the strong one if decoupling persisted long enough to undermine capability itself.

1.4 Why the question matters now

Three developments make the post-peak question unusually pressing in the 2020s. The first is **demographic**. For most of history, the populations of successful societies grew; for the last two centuries, the populations of almost all societies did. That era is ending. Fertility is now below the replacement level of about 2.1 births per woman in more than half of the world's countries and territories, home to about three-quarters of humanity, including China, India, Brazil, every member of the European Union, Japan, South Korea and the United States. The population of Europe peaked around 2020 and that of China in 2021. Societies whose institutions, pensions, housing markets and politics were built for growth must now learn to function as their populations age and shrink, and there are few historical precedents for doing so peacefully.

The second is **technological**. Advances in artificial intelligence are producing systems whose capabilities improve on a time scale of months. Whatever their eventual effects, they promise to widen the gap between what a society can do technically and what its institutions, labour markets and cultural forms are able to absorb. The pace of capability growth is accelerating at the very moment when the social dimensions it depends on are under strain.

The third is **political**. Across many democracies, trust in institutions has fallen, polarization has deepened and support for established parties has fragmented. The share of the world's population living in democracies has fallen since the early 2000s, and the cooperative international order that made

globalization possible is under pressure. These changes have made the question of whether the post-war order represented a high-water mark an urgent practical concern, not only an academic one.

1.5 How the report tests the thesis

The report proceeds in four steps. It first reviews the long tradition of thought about civilizational rise and decline, and the more recent empirical literatures on stagnation, social capital and progress (Section 2). It then builds a framework for asynchronous peaks: a method for dating the peak of an indicator, a set of five tests that any claimed peak must pass, and a first application of the method to eighteen indicators (Section 3). It applies the framework to eight dimensions in turn (Sections 4 to 11), grading the evidence in each. Finally, it synthesizes: it asks whether post-peak is a Western or a global condition (Section 12), identifies the mechanisms that link rising capability to falling cohesion (Section 13), confronts the strongest objections (Section 14), and sets out five pathways to 2100 (Section 15).

Throughout, the report distinguishes two questions that public debate tends to merge. The first is descriptive: *has* a dimension peaked? This can be answered, at least provisionally, with data. The second is evaluative: *does it matter* that it has? A fall in fertility, for example, may be a catastrophe for pension systems and a liberation for individual women; a fragmentation of mass culture may be a loss of shared reference points and a gain in diversity and choice. The report tries to answer the first question rigorously and to be explicit about the values involved in the second.

1.6 What this report does not claim

- It does not claim that the past was better overall. By most measures of material welfare, health and personal freedom, the present is better than any previous period for most people alive.
- It does not claim that decline is inevitable or irreversible. Several of the dimensions examined have recovered from earlier troughs, and Section 15 sets out conditions for renewal.
- It does not claim that any culture, region or people is superior to another, or that the civilizational order of the twentieth-century West is the only one worth having. The thesis concerns the dynamics of dimensions within societies, not a ranking of societies.
- It does not claim that biological evolution has a direction or a summit. Section 4 explains why the language of peaks does not apply to evolution itself.
- It does not claim that technological progress is bad. The argument is that capability does not automatically produce cohesion, and that treating the first as a proxy for the second hides real losses.

02

LITERATURE REVIEW

2. Intellectual Foundations

The idea that civilizations have a life course, rising to a summit and then declining, is among the oldest in social thought. This section reviews four traditions that bear on the post-peak thesis (Figure 2): the cyclical and organic theories of the historians; the complexity and collapse literature of archaeology and systems science; the modern empirical literatures on economic stagnation, social capital and cultural change; and the counter-tradition that documents progress and warns against declinism. Each contributes something essential, and each has a characteristic blind spot.

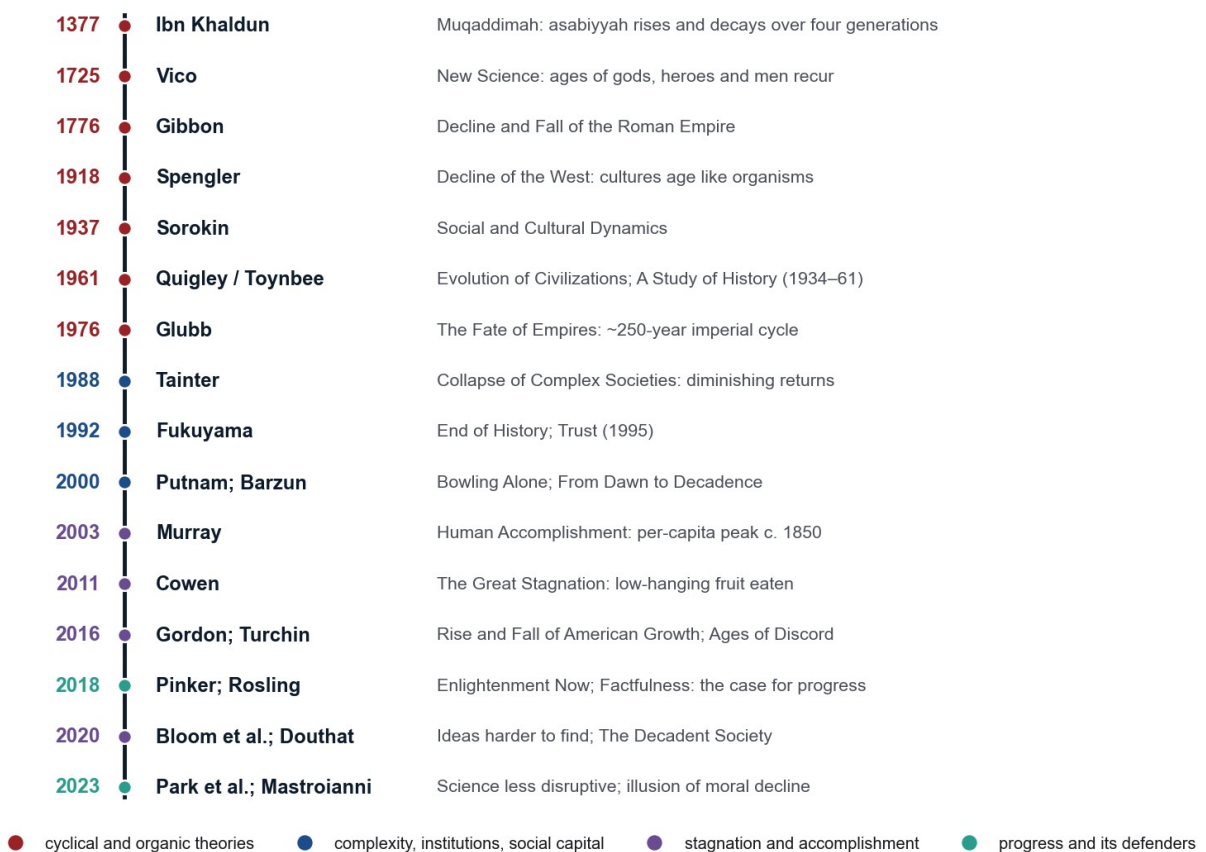


Figure 2. Six centuries of thinking about civilizational peaks. Cyclical and organic theories (red) treat civilizations as wholes that rise and decline; complexity and social-capital theories (blue) identify mechanisms; the stagnation literature (purple) measures slowing achievement and productivity; and the progress literature (teal) documents improvement and the psychology of perceived decline.

Source: *H Heuristics*. Dates are of first publication of the principal work; Toynbee's *A Study of History* appeared in twelve volumes between 1934 and 1961.

2.1 Cycles and organisms: the classical theories

The first systematic theory of civilizational decline was written in 1377 by the North African historian [Ibn Khaldun](#), whose *Muqaddimah* argued that dynasties are founded by groups bound by a strong sense of solidarity, *asabiyyah*, forged in hardship. Success brings wealth, cities and luxury; luxury dissolves solidarity; and within about four generations the dynasty is too divided and soft to defend itself and is replaced by a new group with stronger cohesion. Ibn Khaldun's insight, that the conditions of success erode the social bonds that produced it, is the oldest statement of the mechanism at the heart of the post-peak thesis.

Later cyclical theories generalized the idea. [Giambattista Vico](#) described a recurring sequence of ages of gods, heroes and men. [Edward Gibbon](#) made the decline of Rome the model case for European thought. In 1918 [Oswald Spengler](#) argued in *The Decline of the West* that each high culture is an organism with a life span of about a thousand years, passing from a creative spring to a sterile winter of 'civilization', in which technique and money replace living culture; he placed the West in its late phase. [Arnold Toynbee](#) replaced Spengler's biological determinism with a theory of challenge and response, in which civilizations grow while a creative minority answers successive challenges and decline when that minority hardens into a dominant one that rules by force. [Pitirim Sorokin](#) traced oscillations between 'ideational' and 'sensate' cultures and judged the modern West to be in a late, exhausted sensate phase; [Carroll Quigley](#) described seven stages from mixture to invasion; and the soldier-historian [John Glubb](#) proposed that empires last about ten generations, ending in an 'age of decadence' marked by frivolity, materialism and the welfare state.

These theories share a valuable intuition and a serious weakness. The intuition is that a civilization is more than its technology, and that the qualities which make it creative and cohesive can decay even while its material power grows. Spengler's distinction between *culture* and *civilization* is a direct ancestor of the distinction in this report between cohesion and capability. The weakness is that they treat civilizations as single organisms that rise and fall as wholes, and they were written to fit a small number of cases chosen in hindsight. Their predictions have a poor record: Spengler's West has outlived his forecast by a century, and the dates of Glubb's cycles depend heavily on which empires are counted and when they are said to begin and end. The asynchronous thesis keeps their intuition and drops their holism.

2.2 Complexity, collapse and secular cycles

A second tradition looks for mechanisms rather than life cycles. In *The Collapse of Complex Societies* (1988), the archaeologist [Joseph Tainter](#) argued that societies solve problems by adding complexity, in the form of bureaucracy, specialization, infrastructure and control, and that the returns to complexity diminish. Early investments in irrigation, administration or defence yield large benefits; later ones yield less and less while their maintenance costs keep rising. Eventually a society is paying more to sustain its complexity than that complexity returns, and collapse, a rapid loss of complexity, becomes an economical response to stress ([Tainter 2006](#)). Tainter's argument implies that net benefit can peak while complexity, and the capability it represents, continues to increase, a pattern explored with an original calculation in Section 8.

The cliodynamics programme of [Peter Turchin](#) and colleagues tests such ideas quantitatively. Turchin's structural-demographic theory identifies a recurring sequence in agrarian and early modern states: population growth depresses wages, enriches elites and produces more aspirants to elite positions than there are positions to fill; this **elite overproduction**, combined with popular immiseration and fiscal strain,

produces cycles of political instability about two to three centuries long, with shorter oscillations of about fifty years within them. In a 2010 letter, Turchin forecast that the United States would experience a peak of instability around 2020 ([Turchin 2010](#)). The Seshat global history databank has since allowed the theory to be tested across hundreds of societies; an analysis of 414 societies over 10,000 years found that the many dimensions of social complexity are captured largely by a single principal component ([Turchin et al. 2018](#)), suggesting that over the long run complexity tends to rise as a package. The post-peak thesis asks whether that package is now coming apart.

Complexity science adds two further ideas. The first is that coupled systems can approach thresholds beyond which they shift abruptly to a different state, and that such transitions are often preceded by measurable early-warning signals such as slower recovery from small shocks ([Scheffer et al. 2009](#); [Cumming & Peterson 2017](#)). The second is that crises in different systems can become causally entangled, so that the whole becomes more fragile than its parts ([Lawrence et al. 2024](#)). Both imply that dimensions that look independent may be coupled in ways that only become visible when one of them fails.

2.3 The stagnation literature

A third tradition is empirical and recent. In *The Great Stagnation* (2011), the economist [Tyler Cowen](#) argued that the United States had eaten the 'low-hanging fruit' of free land, mass education and the great inventions of the late nineteenth and early twentieth centuries, and that median living standards had grown slowly since the 1970s as a result. [Robert Gordon](#) made a similar argument at greater length: the 'one big wave' of innovation from electricity, the internal combustion engine, chemistry, telecommunications and indoor plumbing produced a century of unusually fast growth that peaked between 1920 and 1970 and is unlikely to recur, while demographic, educational and fiscal 'headwinds' slow growth further ([Gordon 2012](#)).

The stagnation thesis has been sharpened by studies of research productivity. Bloom, Jones, Van Reenen and Webb showed that while ideas continue to be produced at a steady or rising rate, the number of researchers required to produce them has risen sharply: the research effort needed to sustain the doubling of chip density every two years is now about eighteen times larger than in the early 1970s, and aggregate research productivity in the US economy has fallen by a factor of about 41 since the 1930s, or more than 5 per cent a year ([Bloom et al. 2020](#)). Jones argued that as knowledge accumulates, innovators must spend longer acquiring it before they can extend it, so that the age of first invention rises and teams replace individuals ([Jones 2009](#)). An analysis of 45 million papers and 3.9 million patents found that new work has become steadily less likely to disrupt existing knowledge and more likely to consolidate it ([Park, Leahey & Funk 2023](#)), and in large fields the canon has become entrenched, with new papers clustering around a few already-famous works ([Chu & Evans 2021](#)).

The stagnation literature also extends to cultural and scientific accomplishment. In *Human Accomplishment* (2003), the political scientist Charles Murray compiled the figures most frequently cited in standard reference works on the arts and sciences from 800 BCE to 1950 and found that, relative to the population of Europe and its offshoots, the rate of eminent accomplishment appears to have peaked in the nineteenth century. The physicist Jonathan Huebner estimated from a list of important innovations that the rate of innovation per head of world population peaked around 1873 ([Huebner 2005](#)). Both studies have been criticized for relying on lists compiled by people whose judgement of recent work has not yet been tested by time, a bias that Section 6 examines with an original model.

2.4 Social capital and the 'I–we–I' century

The fourth tradition concerns cohesion. In *Bowling Alone* (2000), the political scientist [Robert Putnam](#) documented a broad decline from the 1960s in American civic engagement: membership of clubs, unions, churches and parent–teacher associations; attendance at public meetings; entertaining friends at home; and generalized trust in other people. He attributed much of it to generational replacement, as a civic-minded cohort shaped by depression and war was succeeded by less engaged ones, and to television and suburban sprawl. In *The Upswing* (2020), Putnam and Shaylyn Romney Garrett extended the analysis backwards and found a striking shape: on measures of economic equality, political cooperation, social cohesion and cultural emphasis on community over self, American society moved from an individualistic 'I' at the end of the nineteenth century to a communitarian 'we' that peaked in the mid-1960s and then back to 'I'. The peak of the American 'we' coincides almost exactly with the peak of trust in government in Figure 4.

Francis Fukuyama's *Trust* (1995) argued that the capacity of a society to form large organizations outside the family and the state, which he called spontaneous sociability, depends on a stock of social trust that is built slowly and can be spent quickly. More recent work on loneliness, polarization and adolescent well-being, reviewed in Section 7, has extended these concerns into the smartphone era. In *The Decadent Society* (2020), the columnist Ross Douthat drew the strands together, describing the contemporary West as rich, technologically sophisticated and comfortable, but stagnant, sterile and repetitive: a civilization that has not collapsed but has stopped moving forward in the ways that matter most.

2.5 The case for progress

Against all of these stands a counter-tradition with a strong empirical record. [Steven Pinker](#) and [Hans Rosling](#) documented sustained improvement across most measures of human welfare: life expectancy, child survival, literacy, nutrition, poverty, violence, democracy (until recently) and the rights of women and minorities. Economic historians such as Joel Mokyr argue that the modern culture of growth is self-sustaining because knowledge builds on knowledge and the tools for producing it keep improving. Psychologists have shown that perceptions of decline are systematically biased: people in at least 60 countries believe that morality has been declining for at least 70 years, yet surveys asking the same questions over time show no decline in reported moral behaviour, a pattern explained by biased exposure to negative information combined with biased memory of the past ([Mastroianni & Gilbert 2023](#)). And people form their most durable cultural preferences between the ages of about ten and thirty, the 'reminiscence bump' ([Rubin, Rahhal & Poon 1998](#)), which predisposes every generation to see the culture of its youth as a high point.

The progress literature is an essential corrective, and Section 14 draws on it to test the thesis. But it has its own blind spot. Its indicators are overwhelmingly measures of capability and material welfare, the dimensions that the post-peak thesis agrees are still rising. It has less to say about the dimensions the thesis claims have peaked: trust, belonging, fertility, shared culture, affordability and ecological stability. The two literatures are therefore less contradictory than they appear. They are measuring different things.

2.6 What the literature leaves open

Table 5. Four traditions and what each contributes to the post-peak thesis

Tradition	Core idea	Contribution	Blind spot
Cyclical and organic (Ibn Khaldun to Glubb)	Civilizations rise and decline as wholes; success erodes the solidarity that produced it	Cohesion can decay while material power grows	Holism; few cases chosen in hindsight; poor predictive record
Complexity and collapse (Tainter, Turchin, Scheffer)	Diminishing returns to complexity; elite overproduction; thresholds	Mechanisms that can be modelled and tested	Mostly pre-industrial evidence; less on culture and family
Stagnation (Cowen, Gordon, Bloom, Park, Murray)	Productivity, research yield and accomplishment per head have slowed	Quantifies the gap between effort and achievement	Risk of mistaking canon lag for decline; focus on the US
Social capital (Putnam, Fukuyama, Douthat)	Trust and association peaked in the mid-twentieth century	Documents the decline of cohesion	Strongly American; disputes over measurement and cause
Progress (Pinker, Rosling, Mastroianni)	Most welfare measures have improved; decline is often an illusion	Corrects nostalgia and negativity bias	Indicators mostly measure capability, not cohesion

The asynchronous thesis attempts to integrate these traditions by treating each as describing a different dimension, with its own clock and its own peak.

Three questions remain open after this review, and the rest of the report addresses them. First, can the peaks claimed by the different traditions be dated on a common basis, so that their timing can be compared? Section 3 attempts this. Second, are the declines real or artefacts of measurement and memory? Section 3 proposes five tests, and Sections 4 to 11 apply them dimension by dimension. Third, is there a common mechanism linking rising capability to falling cohesion, as Ibn Khaldun and Tainter in different ways suggest? Section 13 sets out seven candidates.

03

FRAMEWORK

3. The Asynchrony Principle

3.1 Many clocks, not one

The classical theories of decline imagined a civilization as a single body with a single life course. The central claim of this report is that this image is wrong, and that its wrongness is the key to understanding the present. A civilization is better understood as a set of interacting dimensions, each with its own drivers, its own indicators and, crucially, its own clock (Figure 3). Technologies can improve by orders of magnitude within a decade. Popular culture turns over styles in a few years, while canons take decades to form. Institutions and the trust placed in them shift over decades; constitutions and legal systems over generations. Demographic change is governed by the length of a generation, about thirty years, and by the momentum built into a population's age structure, which lasts a lifetime. Ecological systems change over decades, but the consequences of carbon emissions and sea-level rise play out over centuries and millennia. Biological evolution in a long-lived species such as ours needs tens of generations or more to produce measurable change.

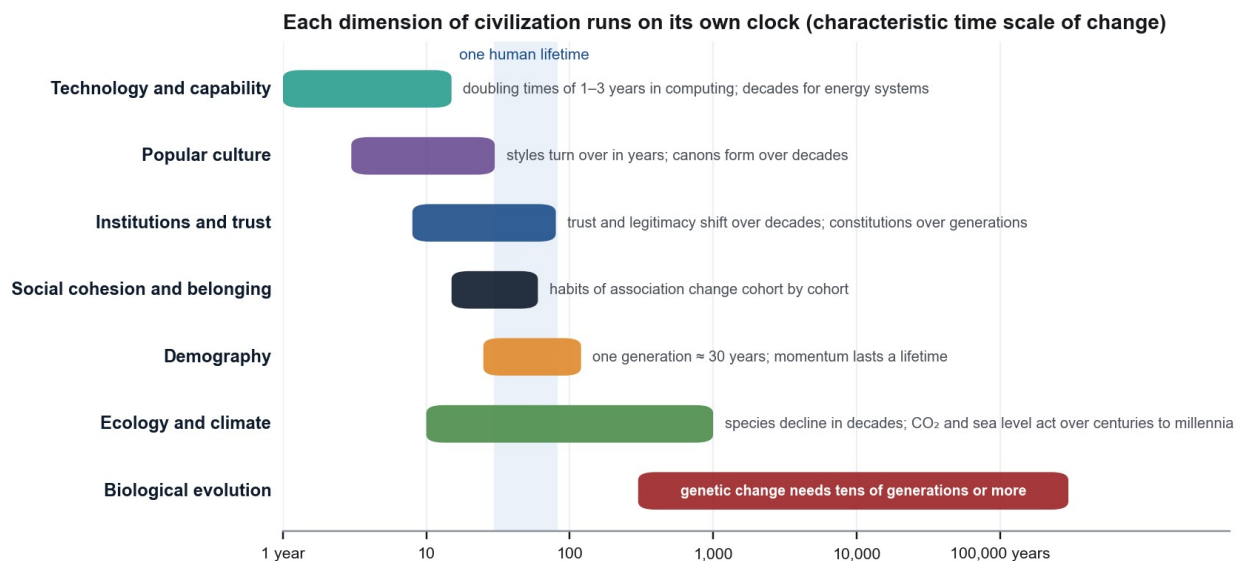


Figure 3. Each dimension of civilization runs on its own clock. Bars show the approximate time scale over which each dimension characteristically changes, on a logarithmic axis. The shaded band marks the span of a single human lifetime.

Source: H Heuristics, drawing on the literature reviewed in Sections 4–11. Time scales are indicative orders of magnitude.

Two consequences follow. The first is that there is no reason to expect the dimensions to peak at the same time. A society's technological capability may be rising rapidly while its demographic structure, set in motion decades earlier, is already committed to decline, and while the institutions built for an earlier

phase of its development are losing legitimacy. The second is that the slow dimensions are easy to overlook. Because technological change is fast and visible, it dominates public perception of how a society is doing. Because demographic, institutional and ecological change is slow, it is noticed only when it has become difficult to reverse. This is the sense in which progress in one dimension can conceal regression in another: the fast clock drowns out the slow ones.

The asynchrony principle. The dimensions of civilization are driven by different forces operating on different time scales. Their peaks need not coincide, a rise in one is not evidence of a rise in the others, and the fastest-moving dimension will tend to dominate perception of the whole.

3.2 Dating a peak

To test the principle, the report dates the peaks of eighteen indicators spanning six dimensions, using the most authoritative long-run series available. The method is deliberately simple. For each indicator, the peak year is the year of the maximum value in the observed series. For noisy series, such as productivity growth, a ten-year centred growth rate is used; for survey series with several polls a year, the annual mean. Where a series begins after its true peak, as with the Living Planet Index (which starts in 1970) and the regional population shares (which start in 1950), the peak is recorded as 'at or before series start'. Where the peak lies in the future, as with world population, the UN medium projection is used and the peak is marked as projected. Indicators that are still rising at the end of their series are recorded as having no peak yet.

The results are shown in Figure 4 and Table 6. They are striking. The fourteen indicators that have peaked did so at dates spread across seven decades. A first cluster falls in the early to mid-1960s: world fertility (1963), the ten-year growth rate of US productivity (centred on 1963), American trust in the federal government (1964) and the growth rate of world population (1965). A second cluster falls in the 1980s and 1990s: the largest shared audience for a US television series (1983), the G7's share of world output (1985) and the share of the world's population living in liberal democracies (1996). A third falls between 2001 and 2021: the share living in any kind of democracy (2001) and the populations of Japan (2009), Europe (2020) and China (2021). World population is projected to peak in 2084. Meanwhile the four indicators of capability and material welfare, supercomputer performance, frontier AI training compute, world life expectancy and the share of humanity above extreme poverty, show no peak at all.

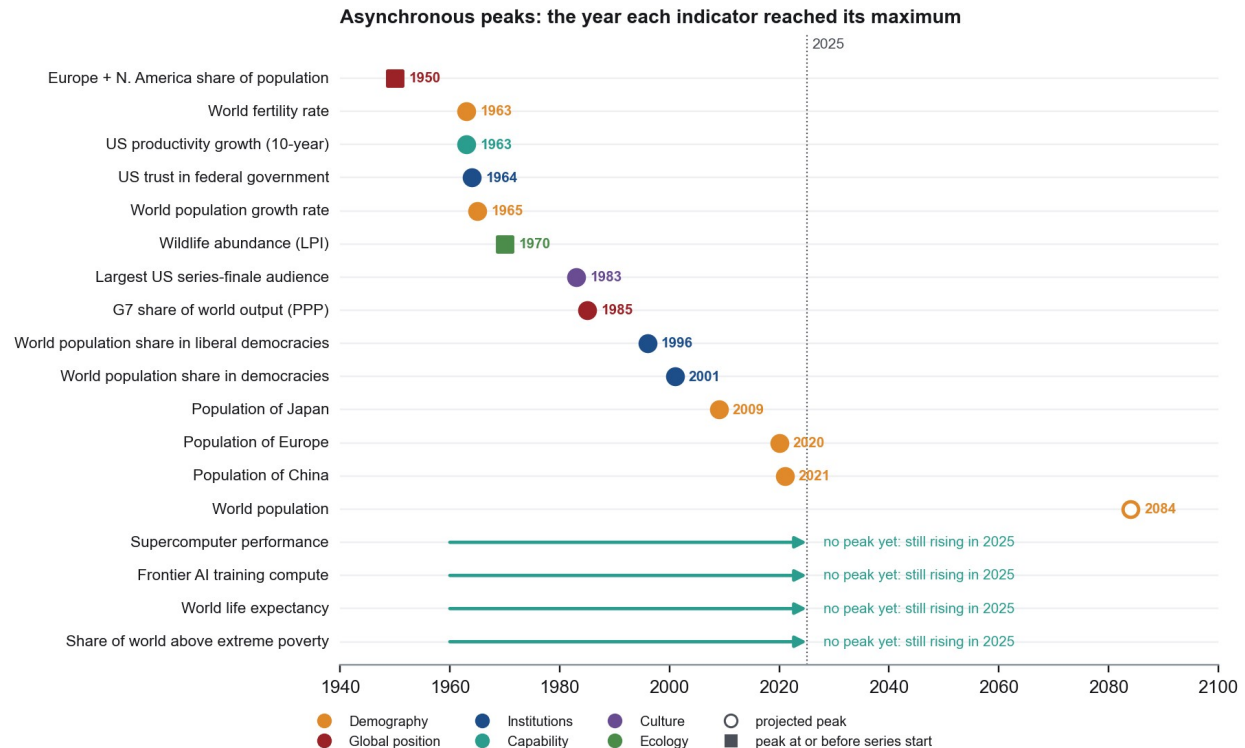


Figure 4. Asynchronous peaks. Each row is an indicator; the marker shows the year of its maximum. Filled circles are observed peaks, the open circle a projected peak, and squares peaks at or before the start of the series. Arrows mark indicators that were still rising in 2025.

Source: H Heuristics calculation from UN WPP 2024, V-Dem Regimes of the World, WWF/ZSL Living Planet Index and Top500 and Epoch AI series (all via Our World in Data); IMF World Economic Outlook (October 2025); BLS nonfarm business output per hour (via FRED); Pew Research Center trust series; and Nielsen audience estimates compiled by Wikipedia.

Table 6. Dated peaks of eighteen indicators

Indicator	Dimension	Peak year	Series and source
Europe and Northern America share of world population	Global position	≤1950	UN WPP 2024 ; 29% in 1950, 14% in 2024
World total fertility rate	Demography	1963	UN WPP 2024 ; peak 5.31 births per woman
US labour productivity growth (10-year centred)	Capability	1963	BLS via FRED ; peak 3.1% a year
US trust in the federal government	Institutions	1964	Pew Research Center ; 77% in 1964
World population growth rate	Demography	1965	UN WPP 2024 ; five-year mean
Wildlife abundance (Living Planet Index)	Ecology	≤1970	WWF/ZSL ; -73% by 2020
Largest US series-finale audience	Culture	1983	Nielsen via Wikipedia ; 106 million
G7 share of world output (PPP)	Global position	1985	IMF WEO ; series from 1980
World share in liberal democracies	Institutions	1996	V-Dem ; 17.5%
World share in democracies	Institutions	2001	V-Dem ; 54%
Population of Japan	Demography	2009	UN WPP 2024
Population of Europe	Demography	2020	UN WPP 2024

Indicator	Dimension	Peak year	Series and source
Population of China	Demography	2021	UN WPP 2024
World population	Demography	2084 (projected)	UN WPP 2024 ; 10.3 billion
Supercomputer performance	Capability	none	Top500 ; still rising
Frontier AI training compute	Capability	none	Epoch AI ; still rising
World life expectancy	Capability	none	UN WPP 2024 ; 73.2 years in 2023
Share of humanity above extreme poverty	Capability	none	World Bank PIP ; still rising

≤ indicates a peak at or before the first year of the series. US indicators stand in for Western societies where no comparable international series exists; Section 12 asks how far the pattern generalizes.

The spread of these dates is itself the first finding. If civilization rose and fell as a whole, the peaks would cluster. Instead they are scattered across more than half a century, and they come in a sequence that makes intuitive sense: the demographic and institutional turning points of the 1960s came first, the cultural and geopolitical turning points of the 1980s and 1990s followed, and the population turning points of the 2010s and 2020s are the delayed consequence of the fertility turning point half a century earlier. The capability indicators, driven by the fastest clock of all, have not turned.

3.3 Five tests for a claimed peak

Dating a maximum is not the same as establishing a peak. Many apparent declines turn out to be artefacts of measurement, illusions of memory, temporary troughs or local peculiarities. The report therefore subjects every claimed peak to five tests, applied in turn (Figure 5).

A claimed peak becomes a finding only if it passes five tests in turn

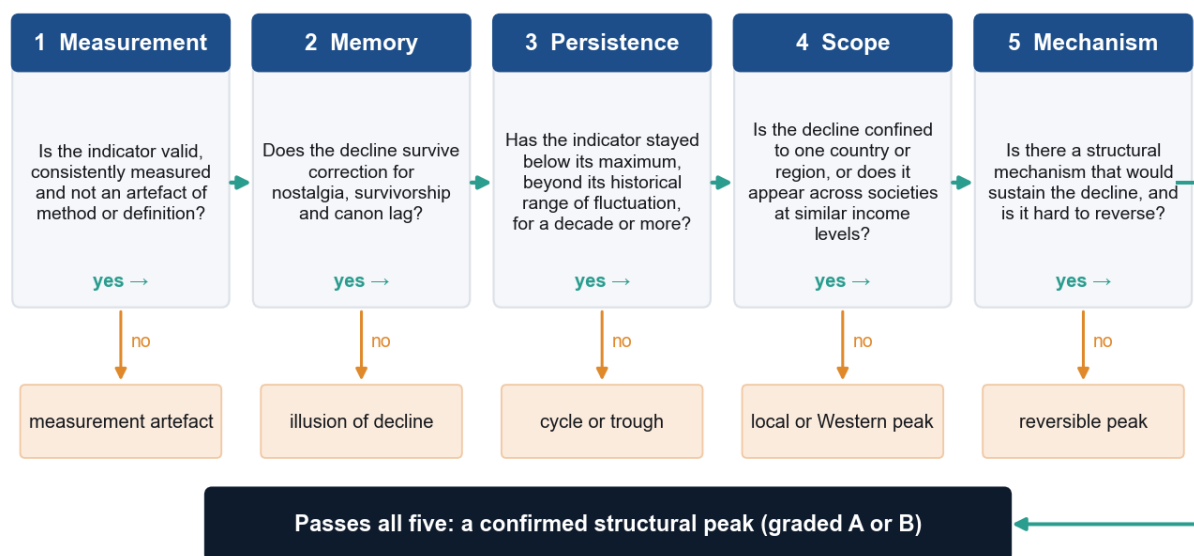


Figure 5. Five tests for a claimed peak. Each test can reclassify an apparent peak as something else: a measurement artefact, an illusion of decline, a cyclical trough, a local or Western peak, or a reversible peak. Only claims that pass all five are treated as confirmed structural peaks.

Source: H Heuristics.

1. **Measurement.** Is the indicator valid, and has it been measured consistently over time? A change of survey mode, definition or classification can create an apparent turning point. The fall in the share of the world's population living in democracies in 2017, for example, is mostly the reclassification of a single country, India, by V-Dem; it reflects a real change in that country's institutions, but it should not be read as a simultaneous global shift.
2. **Memory.** Does the decline survive correction for nostalgia, survivorship and canon lag? This test matters most for culture and achievement, where the past is represented only by what has been remembered. Section 6 presents a model showing how memory alone can produce the appearance of a golden age.
3. **Persistence.** Has the indicator stayed below its maximum, beyond its normal range of fluctuation, for a decade or more? Many social indicators oscillate. American trust in government, for instance, recovered strongly in the 1980s and again after 2001 before falling back; a single low reading is not a peak.
4. **Scope.** Is the decline confined to one country, or does it appear across societies at similar levels of development? A peak confined to the United States may reflect American institutions and politics rather than a civilizational condition.
5. **Mechanism.** Is there a structural mechanism that would sustain the decline and make it hard to reverse? Demographic momentum, cost structures and the economics of attention are examples of such mechanisms; a scandal or a recession is not.

The tests are applied qualitatively and summarized as evidence grades. A claimed peak that passes all five is graded A or B, depending on the strength of evidence. One that fails the memory or measurement test is reclassified as an illusion or artefact; one that fails the persistence test as a cycle; one that fails the scope test as a local or Western peak, which may still matter but is not a civilizational one; and one that passes the first four but fails the fifth as a reversible peak. The results for each dimension are brought together in Section 14 (Figure 24).

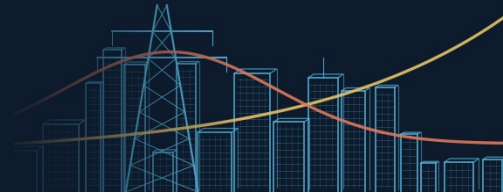
3.4 Progress that conceals regression

The asynchrony principle has an important corollary. If the dimensions move independently, then an aggregate measure that combines them will be dominated by whichever is moving fastest, and can rise while a majority of its components fall. Gross domestic product is the clearest example. GDP per head in the rich world is higher than ever, and the technological capability it reflects is real. But GDP counts the rising cost of housing, healthcare and childcare as an increase in output, gives no weight to the time people spend with friends or the number of children they would like to have, and values ecological losses only when they appear as costs. A society can therefore record steady growth in GDP while its members find it harder to afford a home, form a family or trust their neighbours. Section 13 examines why this happens; Section 10 documents its effects on affordability.

The principle also explains why debates about decline are so often unproductive. Optimists point to the fast dimensions, which are rising, and conclude that things are getting better. Pessimists point to the slow dimensions, which are falling, and conclude that things are getting worse. Both are right about what they measure and wrong about what they conclude. The asynchronous thesis asks a different question: not whether things are getting better or worse, but which things are getting better, which worse, when they turned, and whether the improvement in some is causally related to the deterioration in others.

04

DIMENSION I · BIOLOGY



4. Biological Evolution Has No Summit

4.1 Why evolution cannot peak

The post-peak thesis is sometimes stated as if humanity had reached a biological summit, a high point of physical or mental capacity from which it can only decline. This section explains why that framing is mistaken, and why the biological dimension of the thesis must be stated more carefully than the others. Natural selection is not a ladder. It does not move species toward a goal, and there is no peak of evolution to be reached or passed. Selection adapts populations to the environments they live in, and when environments change, so does what counts as adaptive. A trait that was favoured in a world of scarce calories, high child mortality and manual labour may be neutral or disfavoured in a world of abundant food, low mortality and sedentary work, and the reverse. To say that a population is 'declining' biologically is therefore meaningless unless one specifies declining in what respect, and relative to which environment.

Human evolution has not stopped. Genomic studies have found that the rate of adaptive evolution accelerated over the last 40,000 years as populations grew and moved into new environments ([Hawks et al. 2007](#)), and that selection has continued to act within the last two thousand years on traits such as lactase persistence, pigmentation and height ([Field et al. 2016](#)). Measurable selection continues in contemporary populations, mainly through differences in the number of children people have rather than in survival ([Stearns et al. 2010](#)). Evolution is continuous, slow and directionless. It operates on a clock of tens to thousands of generations (Figure 3), far slower than any of the other dimensions considered in this report.

Why the biological dimension is different. Evolution has no summit. The meaningful biological question is not whether humanity has passed a peak, but whether the environments modern societies create are improving or degrading the health, development and reproduction of the people who live in them.

4.2 Long-run biological change: brains, bodies and self-domestication

Several long-run changes in human biology are sometimes cited as evidence of decline. The most discussed is brain size. Human brains grew dramatically over the last two million years, and a 2021 change-point analysis of fossil crania concluded that average brain size then decreased, beginning about 3,000 years ago, possibly because the collective intelligence of complex societies reduced the need for individual cognitive capacity ([DeSilva et al. 2021](#)). A reanalysis of the same data found no evidence of a decrease during the Holocene at all ([Villmoare & Grabowski 2022](#)). The evidence for recent brain shrinkage is therefore contested, and even if confirmed, a smaller average brain need not mean reduced intelligence, since brain size varies with body size and climate and is only loosely related to cognitive ability within our species.

A related idea is human **self-domestication**: the hypothesis that selection for tolerance and reduced reactive aggression, in a species whose success depended on cooperation, produced in humans many of the anatomical and behavioural changes seen in domesticated animals ([Hare 2017](#)). If correct, it implies that human biology has been shaped by and for social life, and that the biological and social dimensions of civilization are coupled. But it describes an adaptation, not a decline.

A more serious long-run concern is **genetic load**. In environments where modern medicine allows people with harmful mutations to survive and reproduce, selection against those mutations is relaxed, and they may slowly accumulate. The geneticist Michael Lynch has argued that this could reduce average fitness in industrialized populations by something like one per cent per generation, a slow process measured over centuries, which future medicine might offset ([Lynch 2016](#)). Studies of genetic variants associated with educational attainment have found very small declines in their frequency across birth cohorts in Iceland and elsewhere, because people with more education have tended to have fewer children ([Kong et al. 2017](#)). These effects are real but minute: they are a small fraction of the environmental gains in measured ability during the twentieth century, and they operate on a time scale of many generations. They provide no support for claims of rapid biological decline, and the report treats arguments that use them for that purpose as speculative (Grade D).

4.3 Environmental biology: what has plateaued and why

Where change is fast enough to matter for the post-peak thesis, it is environmental rather than genetic. Three examples stand out, and each has been interpreted as a biological peak.

Height. Average adult height rose dramatically in the twentieth century as nutrition, sanitation and health care improved. A study of 18.6 million people in 200 countries found gains over the century of birth cohorts from 1896 to 1996 of as much as 20 centimetres for South Korean women and 16.5 centimetres for Iranian men, but that height had plateaued in many high-income countries among cohorts born after about 1980, and had fallen in some countries in sub-Saharan Africa ([NCD-RisC 2016](#)). Height is a sensitive indicator of the conditions of childhood. Its plateau in rich countries suggests that the biological dividend of the twentieth-century improvement in living conditions has largely been collected.

Measured intelligence. Scores on intelligence tests rose by about three points a decade across much of the twentieth century, the [Flynn effect](#). In several high-income countries, the rise has slowed, stopped or reversed among cohorts born since the 1970s ([Dutton, van der Linden & Lynn 2016](#)). The most informative evidence comes from Norway, where scores on military conscription tests for men born after about 1975 declined. Because the decline also appears between brothers in the same family, it cannot be explained by changes in who has children, and must be environmental ([Bratsberg & Rogeberg 2018](#)). Declines in several cognitive domains have also been reported in a large online sample of US adults between 2006 and 2018 ([Dworak, Revelle & Condon 2023](#)). The causes are unclear. Candidates include changes in education, in reading and media use, and in the content of the tests themselves relative to the skills people now practise.

Reproductive biology. A meta-analysis of sperm counts in 53 countries reported that average sperm concentration fell by about 52 per cent between 1973 and 2018, and that the rate of decline accelerated after 2000 ([Levine et al. 2023](#)). The finding is contested on methodological grounds, including changes in counting methods and in the selection of study participants, and its consequences for fertility are uncertain, since most men remain above the levels associated with infertility. Section 9 argues that the decline in births is overwhelmingly social and economic rather than biological.

4.4 Health and longevity: still rising, with exceptions

The most important biological indicator of all, how long people live, shows no global peak. Life expectancy at birth across the world rose from 46.4 years in 1950 to 73.2 years in 2023 (Figure 6), and the share of children who die before their fifth birthday fell by more than half after 1990. These are among the greatest achievements of the modern era, and they are driven by capability: vaccines, antibiotics, clean water, nutrition and medical care.

The exception is instructive. In the United States, life expectancy stopped rising around 2010, fell between 2014 and 2017, collapsed during the COVID-19 pandemic and has only partly recovered. The gap between the United States and Japan widened from 3.6 years in 1990 to 5.4 years in 2023 (Figure 23). The economists Anne Case and Angus Deaton traced much of the stagnation to rising mortality in midlife among less-educated Americans, from drug overdoses, suicide and alcohol-related liver disease, which they called **deaths of despair** (Case & Deaton 2015). The richest and most technologically advanced country in the world is the one where longevity has stalled. That is the post-peak paradox expressed in biological terms: capability is necessary for health but not sufficient, and where cohesion, purpose and economic security erode, health can stall despite medical progress.

Table 7. The biological dimension: what is rising, what has plateaued, what is contested

Indicator	Trend	Main driver	Grade
Genetic evolution	Continuous, slow, directionless	Selection, drift, migration	A
Brain size (last 3,000 years)	Possible decrease; contested	Uncertain	C
Genetic load under relaxed selection	Possible slow increase	Medicine, low mortality	C
Adult height	Plateau in rich countries since 1980s cohorts	Childhood nutrition and health	A
Measured intelligence	Flynn effect slowed or reversed in several rich countries	Environment (shown within families)	B
Sperm concentration	Reported decline; methods disputed	Uncertain; environmental candidates	C
Global life expectancy	Still rising	Medicine, sanitation, income	A
US life expectancy	Stalled since about 2010; deaths of despair	Social and economic conditions	A

Grades refer to the trend described, not to its interpretation. None of these indicators supports the claim that humanity has passed a biological peak.

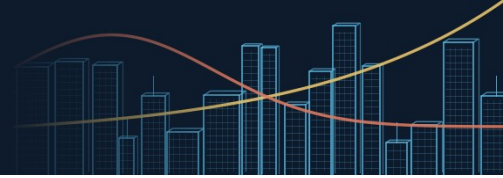
4.5 Assessment

The biological dimension provides the clearest illustration of why the post-peak thesis must be asynchronous rather than holistic. Evolution has no peak, and claims of rapid genetic decline are not supported. What has peaked or plateaued, in some countries, are environmentally driven traits: height, measured cognitive performance and, in the United States, longevity. These plateaus are informative, but what they reveal is a change in the environments that modern societies provide, not in human nature. They suggest that the twentieth century's great biological dividend from better nutrition, sanitation and schooling has been largely collected in rich countries, and that further gains will depend less on capability than on the social and economic conditions in which people live. The biological dimension is therefore

graded **no peak** for evolution and for global health (Grade A), and **plateau** for several environmental traits in high-income countries (Grade B).

05

DIMENSION II · SCIENCE AND TECHNOLOGY



5. The Capability Curve

5.1 A curve that has not bent

If any dimension of civilization has clearly not peaked, it is technological capability. Figure 6 shows six long-run indicators. The number of transistors on a leading microprocessor rose about 25,213,997-fold between 1971 and 2021, an almost unbroken exponential consistent with [Moore's law](#). The performance of the world's fastest supercomputer rose about 15 million-fold between 1993 and 2025, reaching more than an exaflop, a billion billion calculations a second ([Top500](#)). The cost of sequencing a human genome fell from about \$95 million in 2001 to about \$525 in 2022, a 181,585-fold reduction ([NHGRI](#)). The price of a solar photovoltaic module fell about 1,101-fold between 1975 and 2025. The computation used to train the largest artificial-intelligence models rose by a factor of roughly ten billion between 2010 and 2025 ([Epoch AI](#)). And life expectancy, the summary measure of what medicine, sanitation and nutrition can achieve, has continued to rise in every world region.

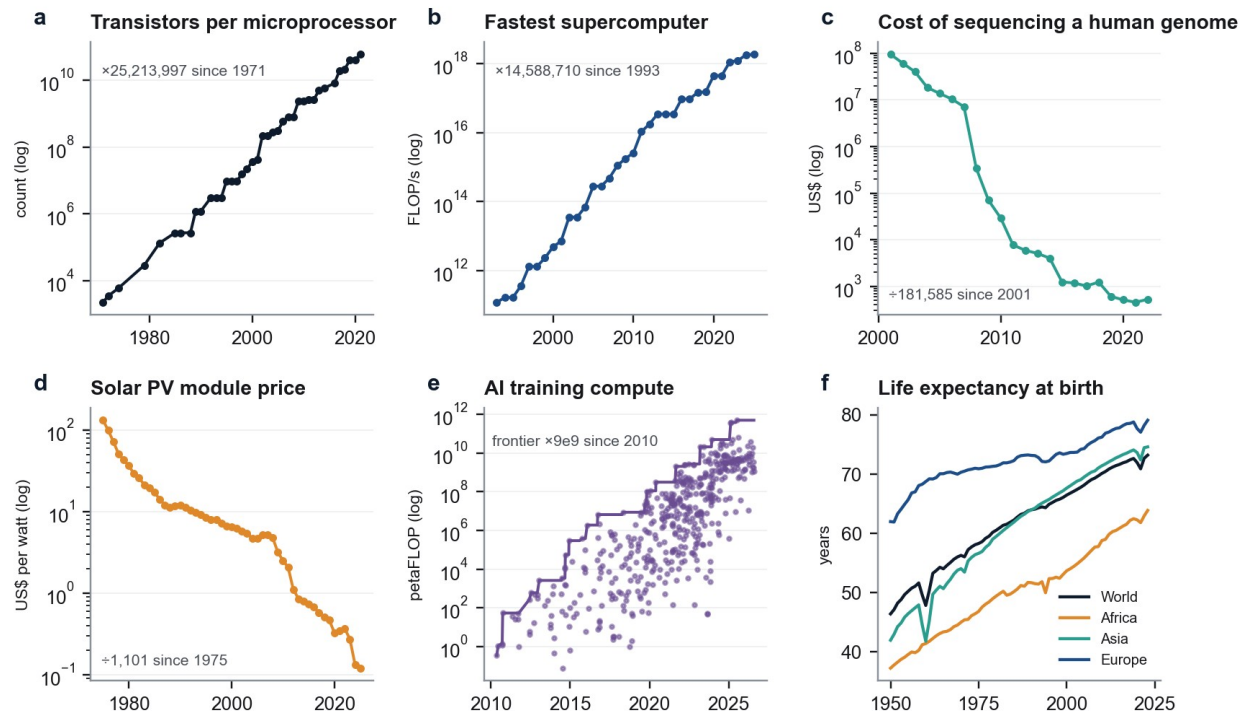


Figure 6. The capability curve has not bent. (a) Transistors per microprocessor; (b) performance of the fastest supercomputer; (c) cost of sequencing a human genome; (d) price of solar photovoltaic modules; (e) computation used to train notable AI models, with the running maximum; (f) life expectancy at birth by region. Panels a–e use logarithmic scales, on which steady exponential change appears as a straight line.

Source: *Our World in Data*, from Karl Rupp and Wikipedia (transistors), Top500 (supercomputers), NHGRI (genome sequencing), IRENA and Nemet (solar PV), Epoch AI (AI training compute) and UN WPP 2024 (life expectancy). H Heuristics chart.

Several features of these curves matter for the post-peak thesis. The first is that they are exponential, and exponentials are deceptive. A process that doubles every two years produces as much change in the next two years as in all previous history combined. A society on such a curve will always feel that the most important developments are happening now, which helps explain why the fast clock of capability dominates perceptions of progress. The second is that the curves are not confined to a single technology. Computing, biotechnology, energy and artificial intelligence are improving at once and reinforcing each other: cheaper computation makes genome sequencing and AI cheaper, and AI accelerates research in materials, biology and energy. The third is that the curves show no sign of the saturation that would mark a peak. Moore's law in its original form has slowed as transistors approach atomic dimensions, but performance per dollar continues to improve through new architectures, specialized chips and larger systems.

Finding. Frontier technological capability shows no peak. On every long-run measure examined, it continues to rise exponentially, and the rise of artificial intelligence suggests that its pace may be accelerating (Grade A).

5.2 The productivity puzzle

Yet the extraordinary rise of frontier capability has not been matched by a comparable rise in the productivity of the economy as a whole. Figure 7 shows US labour productivity, output per hour in the nonfarm business sector, and total factor productivity, the part of growth not explained by more capital or labour. Labour productivity grew at 2.8 per cent a year between 1948 and 1973, slowed to 1.4 per cent

between 1973 and 1995, revived to 3.0 per cent during the information-technology boom of 1995 to 2005, and fell back to 1.5 per cent between 2005 and 2019. Total factor productivity, measured in the Penn World Table, grew at 1.1 per cent a year in the earliest period, at 0.3 per cent in 1973–95 and at 0.3 per cent in 2005–19. Had output per hour continued to grow at its 1948–73 rate, it would be about two-thirds higher today than it is: the actual level in 2024 was 61 per cent of that counterfactual.

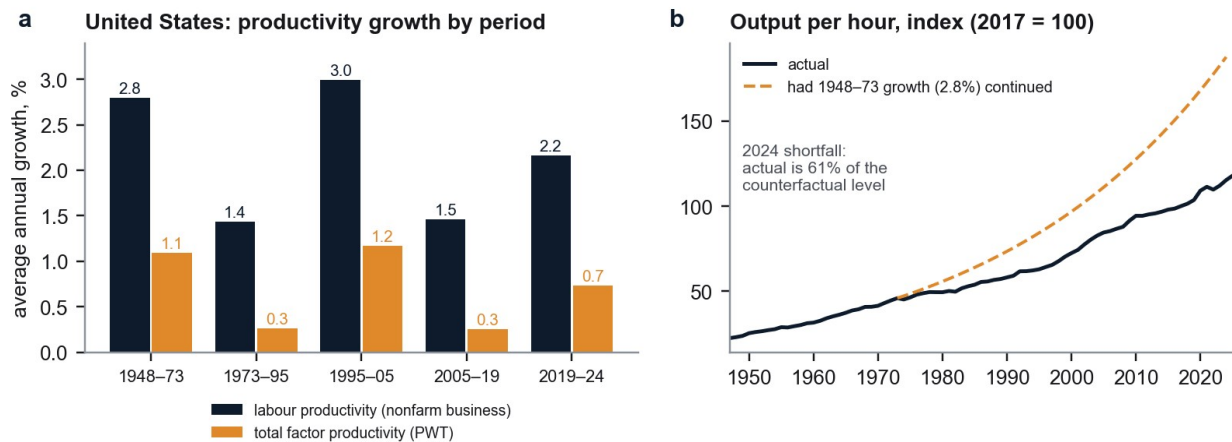


Figure 7. The productivity slowdown in the United States. (a) Average annual growth of labour productivity (nonfarm business output per hour) and total factor productivity by period. (b) Output per hour compared with a counterfactual in which the 1948–73 growth rate had continued.

Source: US Bureau of Labor Statistics, *Nonfarm Business Sector: Labor Productivity (OPHNFB)*, and University of Groningen Penn World Table 10.01, *Total Factor Productivity at Constant National Prices for the United States (RTFPNAUSA632NRUG)*, both via FRED. TFP for the first period begins in 1954; for the last it ends in 2023. H Heuristics calculation.

This is the productivity puzzle, first stated by the economist Robert Solow in 1987 when he observed that 'you can see the computer age everywhere but in the productivity statistics'. Three broad explanations compete. The first is **mismeasurement**: digital goods such as search, maps and social media are free at the point of use and are poorly captured by output statistics, so real gains in welfare are understated. Most careful studies find that mismeasurement can explain only a small part of the slowdown, because it began before free digital goods became important and because it appears in sectors where measurement has not changed. The second is **lags**: general-purpose technologies such as electricity took decades to raise productivity because factories, skills and organizations had to be redesigned around them, and computing and AI may be following the same path. The third is **diminishing returns to research**, the explanation most relevant to the post-peak thesis.

5.3 Are ideas getting harder to find?

Bloom and colleagues framed the question precisely. In a standard model of growth, the growth rate of productivity equals the number of researchers multiplied by their research productivity. The number of researchers in the United States has risen more than twentyfold since the 1930s, but productivity growth has not risen; it has fallen. Research productivity must therefore have fallen sharply, by a factor of about 41 since the 1930s, or more than 5 per cent a year (Bloom et al. 2020). The pattern appears in every case they studied. Sustaining Moore's law requires about eighteen times as many researchers as in the early 1970s. Raising crop yields and extending life expectancy require steadily more research effort per unit of gain.

Other studies point in the same direction. As the stock of knowledge grows, the training needed to reach the frontier lengthens, the age at which inventors make their first contributions rises, and research is

increasingly done by teams rather than individuals ([Jones 2009](#)). An analysis of 45 million papers and 3.9 million patents over six decades found that a measure of disruptiveness, the extent to which a new work leads later researchers to cite it instead of the work it built on, fell by more than 90 per cent for papers and by between 78 and 92 per cent for patents between 1945 and 2010, across every field ([Park, Leahey & Funk 2023](#)). And as fields grow larger, attention concentrates on already-canonical work, so that new ideas find it harder to break through ([Chu & Evans 2021](#)).

Table 8. Evidence on the yield of research and innovation

Study	Finding	Interpretation	Grade
Bloom et al. 2020	US research productivity has fallen by a factor of about 41 since the 1930s	Each increment of growth requires more research effort	B
Jones 2009	Age at first invention and team size are rising	The 'burden of knowledge' grows with the stock of knowledge	B
Park et al. 2023	Disruptiveness of papers and patents fell sharply 1945–2010	Science increasingly consolidates rather than overturns	B–C
Chu & Evans 2021	In large fields, citations concentrate on canonical papers	Size can slow the turnover of ideas	B
Huebner 2005	Important innovations per head of world population peaked around 1873	Contested; depends on lists and denominators	C
Gordon 2012	Growth from the 'great inventions' peaked between 1920 and 1970	The twentieth century may have been exceptional	B–C

The disruption measure and the innovation counts are sensitive to how citations and innovations are recorded. The fall in research productivity is more robust because it rests on inputs and outputs measured independently.

These findings are consistent with frontier capability continuing to rise exponentially. The two are reconciled by effort. Capability keeps rising because the world devotes ever more people and money to pushing it: global spending on research and development more than doubled in real terms between 2000 and the early 2020s, with much of the increase in China. The post-peak question is therefore not whether capability is rising, but whether the **yield** of each unit of effort is falling, and whether the effort itself can be sustained. That depends on the size and education of the research workforce, which depends in turn on demography and on the institutions that fund and organize science, two dimensions examined later in the report.

5.4 The geography of capability

Capability is also changing location. In 2024 China accounted for about 49 per cent of the world's 3.7 million patent applications, up from about 35 per cent in 2014; the United States, in second place, received about 603,000 ([WIPO 2025](#)). In the [Nature Index](#) of high-quality research output, China overtook the United States in 2023 and widened its lead in 2024. The frontier of capability is no longer located predominantly in the societies that created the modern scientific enterprise. For the Western version of the post-peak thesis, this is a peak in relative position. For the asynchronous version, it is evidence that capability is a property of the human system as a whole, and can continue to rise even as particular societies lose their share of it. Section 12 returns to this redistribution.

5.5 Artificial intelligence and the next phase

The rise of artificial intelligence complicates every part of this picture. If AI systems can increasingly perform research tasks, generating hypotheses, designing experiments, writing code and analysing data, they could reverse the decline in research productivity by substituting for scarce human researchers. In that case the stagnation of the last half-century would prove to have been a pause before a new acceleration, and the demographic constraint on the research workforce would matter less. If, on the other hand, AI raises frontier capability without raising broad-based productivity, or does so while displacing work faster than institutions can adapt, it would widen the gap between capability and cohesion that this report documents. Both outcomes are plausible, and which occurs will depend less on the technology than on the social and institutional dimensions examined in Sections 7 and 8. The capability curve has not bent. What it will be used for remains open.

5.6 Assessment

The capability dimension passes none of the tests for a peak. Frontier capability is rising on every long-run measure, across every major field and region, and is graded **no peak** (Grade A). The yield of capability, measured by productivity growth and research productivity, has fallen since the mid-twentieth century and is graded **plateau** (Grade B): the effort needed to sustain progress is rising faster than progress itself. This combination, rising capability with falling yield, is the first instance of a pattern that recurs throughout the report. The frontier advances; the return to pushing it falls; and the costs of pushing it fall on dimensions that the frontier does not measure.

06

DIMENSION III · CULTURE



6. The Cultural Peak Hypothesis

6.1 Two claims that must be kept apart

One of the most defensible versions of the post-peak thesis concerns culture. The argument runs as follows. The second half of the twentieth century produced popular figures whose fame crossed generations, classes and continents: rock-and-roll legends, film stars, athletes, founders and political leaders who seemed to embody a common era. Hundreds of millions of people watched the same broadcasts, bought the same records and recognized the same faces. The question is whether the West still produces figures with comparable cross-generational influence, or whether cultural attention has fragmented into smaller, competing audiences, each with its own stars.

Two claims are bundled together in this argument, and they must be separated. The first is a claim about **shared recognition**: that fewer cultural works and figures are now known to a majority of the population than were known at some earlier peak. The second is a claim about **cultural quality**: that the works and figures themselves are less excellent, original or profound than those of the past. The first claim can be investigated with data on audience concentration, cross-generational recognition, media fragmentation and the persistence of attention. The second is much harder to establish, because judgements of quality are contested, change over time and are distorted by the way memory filters the past. This section examines each in turn, and concludes that the evidence supports the first and does not yet support the second.

The cultural peak hypothesis. Certain Western societies may have passed a historical high point in shared popular culture, institutional prestige and the production of broadly recognized cultural figures. This is a claim about shared recognition, not necessarily about cultural quality.

6.2 The end of the mass audience

The clearest evidence for a peak in shared culture is the size of the largest audiences. The final episode of *M*A*S*H* in February 1983 was watched by about 106 million Americans, around 45 per cent of the population, and remains the most-watched episode of any scripted series in US history ([Nielsen, compiled by Wikipedia](#)). The finales of *Cheers* (1993) and *Seinfeld* (1998) drew 80 and 76 million. By 2004, *Friends* drew 52.5 million; by 2010, *Lost* drew 13.5 million; and the finale of *Game of Thrones* in 2019, the most discussed series of its decade, drew 13.6 million viewers on its first broadcast, about 4 per cent of the population (Figure 8). The decline is not because people watch less. Total viewing time, across television, streaming and online video, has risen. It is because the same total attention is now spread across vastly more programmes, channels and platforms.

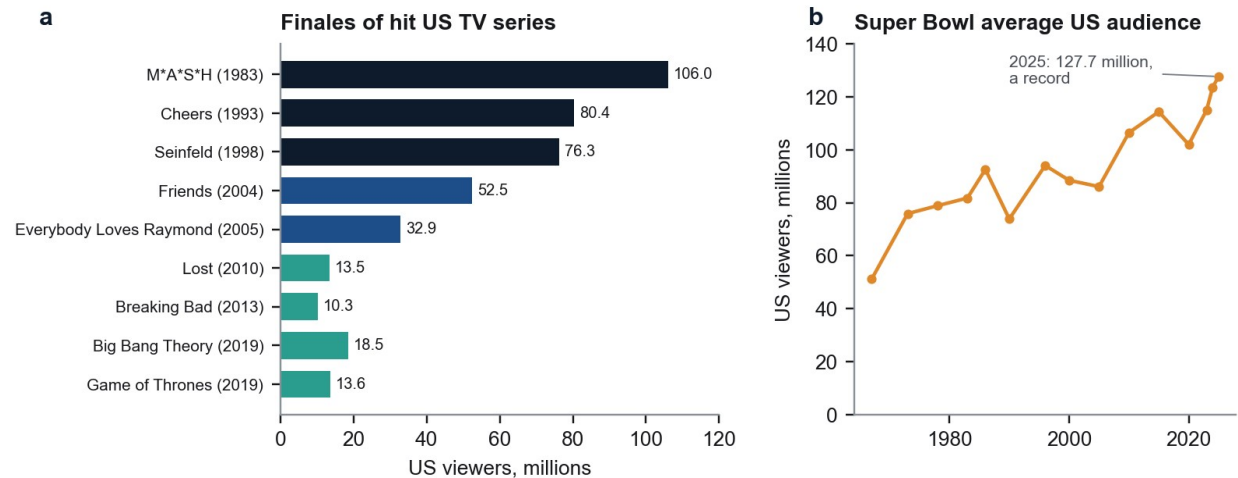


Figure 8. The end of the mass audience, and its one exception. (a) US viewers of the finales of hit scripted television series, 1983–2019. (b) Average US audience of the Super Bowl, 1967–2025.

Source: Nielsen estimates compiled in Wikipedia, *List of most-watched television broadcasts in the United States*; Nielsen (2025) for Super Bowl LIX. *Game of Thrones* figure is the first-broadcast audience on HBO; the total across platforms that night was about 19.3 million. *H Heuristics* chart.

There is one striking exception. The Super Bowl, America's annual championship game, has not lost its audience; it has grown. In February 2025 it was watched by an average of 127.7 million people, the largest audience in US television history (Nielsen 2025). Live sport, along with a handful of other live events, has become the principal remaining occasion on which a large majority of a nation attends to the same thing at the same time. This suggests that the demand for shared experience has not disappeared. It has been concentrated into the few forms that cannot be time-shifted, personalized or fragmented: events whose meaning depends on being watched together, live.

Similar patterns appear in music. In the United States, recordings more than eighteen months old, which the industry calls catalogue, accounted for about 73 per cent of all music consumption in 2024, measured in album-equivalent units (Luminate, via Music Business Worldwide). New releases compete not only with each other but with the entire recorded history of popular music, available instantly and at no marginal cost. The share of attention captured by new music has fallen accordingly, and the critic Ted Gioia has argued that this represents a structural shift in which old music crowds out new (Gioia 2022).

6.3 The arithmetic of fragmentation

Why should more choice reduce shared recognition? Figure 9 presents a simple model. Suppose that attention is divided among a number of competing channels, programmes or creators, and that their popularity follows a Zipf distribution, a pattern found across many cultural markets in which the second most popular item receives about half the attention of the first, the third about a third, and so on. The model asks two questions: what share of total attention can the single most popular item capture, and what is the probability that two randomly chosen people are attending to the same item?

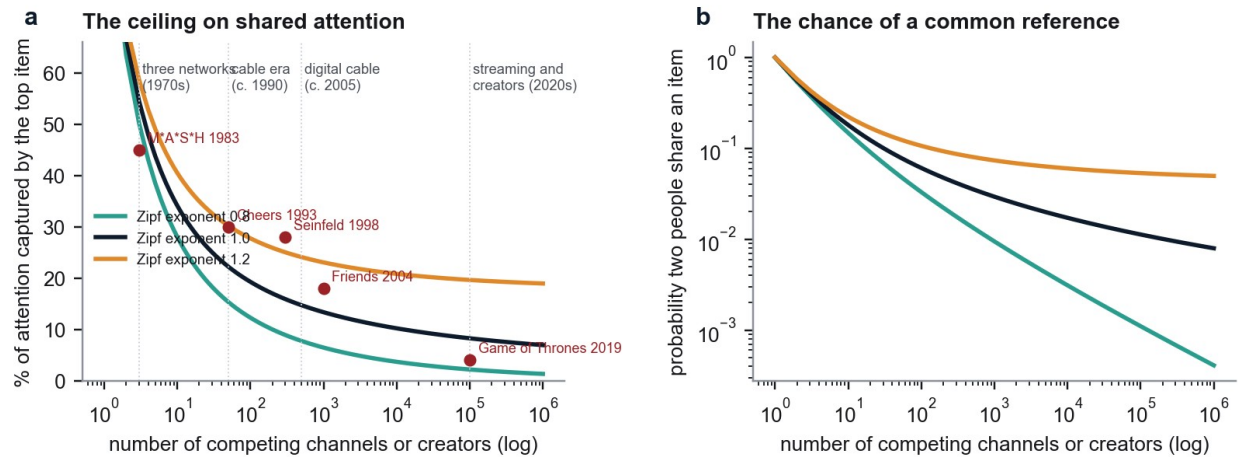


Figure 9. The arithmetic of fragmentation. (a) The maximum share of attention captured by the most popular item when attention is divided among K competitors whose popularity follows a Zipf distribution, for three values of the exponent; red points show the audience share of selected US series finales, plotted at an approximate number of competing channels. (b) The probability that two randomly chosen people are attending to the same item.

Source: H Heuristics calculation. Shares follow $p_k \propto k^{-s}$; the probability of a shared item is $\sum p_k^2$. Finale shares are viewers divided by US population; the channel counts assigned to them are illustrative.

With three competitors, as in the era of the three American broadcast networks, the most popular item captures about 55 per cent of attention under a Zipf exponent of one. With fifty, as in the cable era, the figure falls to about 22 per cent; with five hundred, to about 15 per cent; and with a hundred thousand, roughly the scale of the streaming and creator economy, to about 8 per cent. The probability that two people share a reference point falls even faster. The observed finale audiences track the model closely. The model is crude, but its lesson is robust: when the number of competitors grows by orders of magnitude, the ceiling on shared attention falls by an order of magnitude, whatever the quality of the work. A figure of the stature of the Beatles or Michael Jackson in their time may simply be arithmetically impossible in a market of this size.

Collective attention has also accelerated. A study of Twitter, Google Books, films, Reddit and Wikipedia found that topics now rise and fall faster than in the past: in 2013 a hashtag stayed in Twitter's global top 50 for an average of 17.5 hours, and by 2016 for 11.9 hours, with similar acceleration in other media ([Lorenz-Spreen et al. 2019](#)). The authors attribute this to the growing volume of content competing for finite attention, which exhausts each topic faster. Experimental evidence shows, in addition, that when people can see what others are choosing, success becomes both more unequal and less predictable: small early advantages are amplified, so that which works become hits depends partly on chance ([Salganik, Dodds & Watts 2006](#)). Fragmentation and winner-take-all dynamics are therefore not opposites. Markets can be fragmented across niches and highly concentrated within them.

6.4 Has culture become more homogeneous, or less?

A different version of the cultural peak hypothesis holds that popular culture has become more repetitive, formulaic and homogeneous. Here the evidence is mixed. An analysis of nearly half a million recordings from 1955 to 2010 found that the variety of pitch transitions in Western popular music narrowed, timbral palettes became more homogeneous and recordings grew steadily louder ([Serrà et al. 2012](#)). An analysis of more than 12,000 English-language song lyrics from 1970 to 2020 found that they became simpler and more repetitive ([Parada-Cabaleiro et al. 2024](#)). But a study of about 17,000 songs from the US Billboard Hot 100 between 1960 and 2010 found no evidence of progressive homogenization: instead, diversity fell

in the early 1980s and recovered, and the history of American pop was punctuated by three stylistic revolutions, in 1964, 1983 and 1991 ([Mauch et al. 2015](#)). In film, the dominance of sequels, remakes and franchises in the highest-grossing lists since about 2000 is widely documented, but so is the explosion of independent production, international cinema and long-form television that many critics regard as a creative high point.

The safest conclusion is that the industrial *centre* of popular culture, the part designed to reach the largest audiences, has become more repetitive and risk-averse, because the costs of failure in a fragmented market are high and known properties reduce risk. The *periphery*, where most new work is now made, has become far more diverse. Whether that is a decline depends on which part of the culture one is looking at.

6.5 Why every generation's golden age is thirty years ago

The most serious obstacle to the cultural peak hypothesis is memory. Earlier decades may seem culturally superior partly because their most influential figures survive in collective memory, while their forgotten and mediocre output has faded away. The present, by contrast, is seen whole, with its mediocrity intact. Studies of collective memory find that attention to cultural works decays in two stages: a fast decay of 'communicative' memory, sustained by conversation among people who experienced the work, followed by a slow decay of 'cultural' memory, sustained by institutions such as schools, archives and canons ([Candia et al. 2018](#)). Only a small fraction of works makes the transition. And because cultural preferences are formed mainly between the ages of about ten and thirty, every generation is predisposed to regard the culture of its youth as a high point ([Rubin, Rahhal & Poon 1998](#)).

Figure 10 shows how these processes alone can manufacture a golden age. In the model, the quality of each year's cultural output is held constant by construction: every year produces the same number of works, drawn from the same distribution of quality. Better works are forgotten more slowly than worse ones, and a work becomes a recognized classic only after a period of canonization, because it takes time for critics, institutions and later artists to confirm its importance. The model then asks, from the vantage point of a particular year, how many classics each past year appears to have produced.

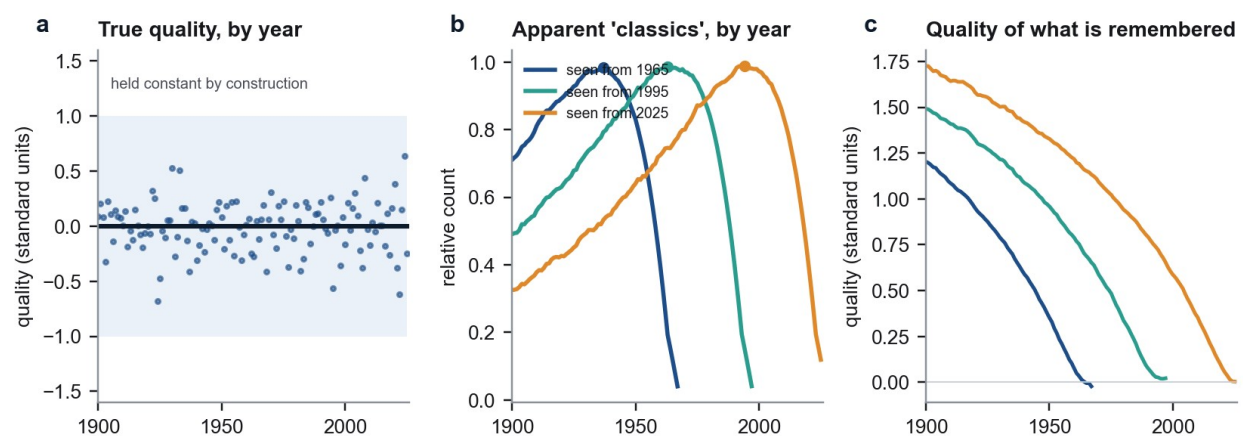


Figure 10. How memory manufactures a golden age. (a) True quality of cultural output, held constant by construction. (b) The apparent number of recognized classics produced in each year, as seen from 1965, 1995 and 2025: each vantage point sees a peak about 30 years in its own past. (c) The mean quality of works still remembered, which rises with age because only the best survive.

Source: H Heuristics calculation. Each year produces 4,000 works with quality $q \sim N(0, 1)$. A work of quality q and age a is still recognized if $\exp(-a/\tau(q)) > 0.05$, with $\tau(q) = 12 \cdot e^q$ years; it is canonized with probability $1 - \exp(-a/40)$. Curves smoothed over five years.

The result is a golden age that moves. Seen from 1965, the apparent peak of cultural production lies in 1937; seen from 1995, in 1963; seen from 2025, in 1994. In each case the peak lies about 31 years in the past, because works from that period have had time to be canonized but have not yet been forgotten. Older periods appear to have produced fewer classics because most of their work has faded; recent periods appear to have produced fewer because their classics have not yet been recognized. At the same time, the average quality of what is remembered from the distant past is far higher than that of what is remembered from the recent past: in the model, works from around 1950 still remembered in 2025 average 1.33 standard units of quality, while those from around 2015 average 0.21. The past looks better because it has been edited.

The model does not show that cultural quality has not declined. It shows that the perception of decline is exactly what one would expect even if quality were constant, and that any test of the cultural peak hypothesis must correct for it. The most influential studies of accomplishment, such as Murray's and Huebner's, rely on reference works compiled by experts whose judgement of recent periods has not yet been tested by time. A database of globally famous biographies compiled from Wikipedia in many languages shows the same structure: the number of famous people born in each decade rises steadily into the twentieth century and then falls for the most recent birth cohorts, who have not yet had time to become famous (Yu et al. 2016). That fall is an artefact of time, not evidence of declining talent.

6.6 What a fair test would look like

Table 9. Testing the cultural peak hypothesis

Claim	Evidence	Passes memory test?	Grade
The largest shared audiences have shrunk	Series-finale audiences down by nearly 90% since 1983; live sport the exception	Yes: measured at the time	A
Shared recognition of cultural figures has declined	Fragmentation model; accelerating attention cycles; catalogue dominance in music	Mostly: partly measured at the time	B
The commercial centre of culture has become more repetitive	Franchise dominance; simpler lyrics; homogenized timbre	Partly	B–C
Popular culture has become less diverse overall	Mixed: Billboard diversity recovered after the 1980s; niche production has exploded	Partly	C
Cultural quality and creativity have declined	Counts of eminent figures; critical judgement	No: confounded by canon lag	D

The memory test asks whether the evidence was recorded at the time or reconstructed from what has survived. Only the former can distinguish real decline from the illusion produced by survivorship and canon lag.

A fair test of the quality claim would compare like with like: works from different periods judged at the same distance in time, or contemporary judgements recorded when each work appeared. Some such tests are possible, for example comparing the critical reception of the best films of 1975, as recorded in 1980, with that of the best films of 2015, as recorded in 2020. They have rarely been attempted systematically, and they are a priority in the research agenda set out in Section 16.

6.7 Assessment

The cultural dimension divides cleanly. Shared popular culture, the capacity of a society to attend to the same works and recognize the same figures, has passed its peak in the United States and probably across the rich world, and the mechanism, the arithmetic of fragmentation in markets with near-infinite supply, makes early reversal unlikely (Grade B, **peak passed**). Cultural quality has not been shown to decline, and the leading evidence for its decline is confounded by survivorship and canon lag (Grade D, **unproven**). The distinction matters for what follows. A society can produce excellent culture and still lose the shared reference points that allow its members to feel that they belong to a common story. It is the second loss, more than the first, that connects cultural change to the erosion of social cohesion examined next.

07

DIMENSION IV · SOCIAL COHESION



7. The Erosion of Social Cohesion

7.1 What cohesion is and why it matters

Social cohesion is the capacity of a society to hold together: the trust people extend to strangers, the associations through which they cooperate, the shared identities that let them see one another as members of a common enterprise, and the willingness to bear costs for others they will never meet. It is harder to measure than capability, and it moves more slowly. But it is not a luxury. High-trust societies have lower transaction costs, more effective governments, better public health and faster recovery from disasters. Social connection is also a matter of individual survival: a meta-analysis of 148 studies found that people with stronger social relationships had about 50 per cent higher odds of survival over the study periods than those with weaker ones, an effect comparable to that of smoking ([Holt-Lunstad, Smith & Layton 2010](#)).

This section examines five components of cohesion: interpersonal trust, religious and civic belonging, friendship and isolation, political polarization, and the well-being of the young. It finds strong evidence of decline in the United States, weaker and more mixed evidence elsewhere in the rich world, and a pattern of change that is consistent with the post-peak thesis in its asynchronous form but not with a simple story of universal decline.

7.2 Trust in other people

The longest American series on interpersonal trust comes from the [General Social Survey](#), which has asked since 1972 whether 'most people can be trusted' or 'you can't be too careful in dealing with people'. The share choosing the first answer fell from about 46 per cent in 1972 to about 25 per cent in 2022, the lowest in the series. The decline is largely generational: each cohort born after the Second World War has been less trusting than the one before, and the cohorts born since 1980 are the least trusting of all. Because generalized trust tends to be stable within individuals as they age, this implies that it will continue to fall as older cohorts are replaced, unless younger ones become more trusting later in life.

The international picture is quite different (Figure 11). In the [World Values Survey](#), which uses the same question, the share of people saying most others can be trusted rose between the mid-1980s and 2022 in Norway (from 55 to 72 per cent), Sweden (52 to 63), the Netherlands (38 to 57), Germany (26 to 42) and Spain (32 to 41). It was broadly stable in the United Kingdom, Canada, Australia and Italy, and fell in Japan, South Korea and, sharply, Mexico. The American survey shows a smaller fall than the GSS, because of differences in method and timing. The trust component of the post-peak thesis therefore fails the scope test as a civilizational claim. Interpersonal trust has not peaked across the rich world; it has fallen in some societies and risen in others, and the societies where it has risen are among the most technologically advanced.

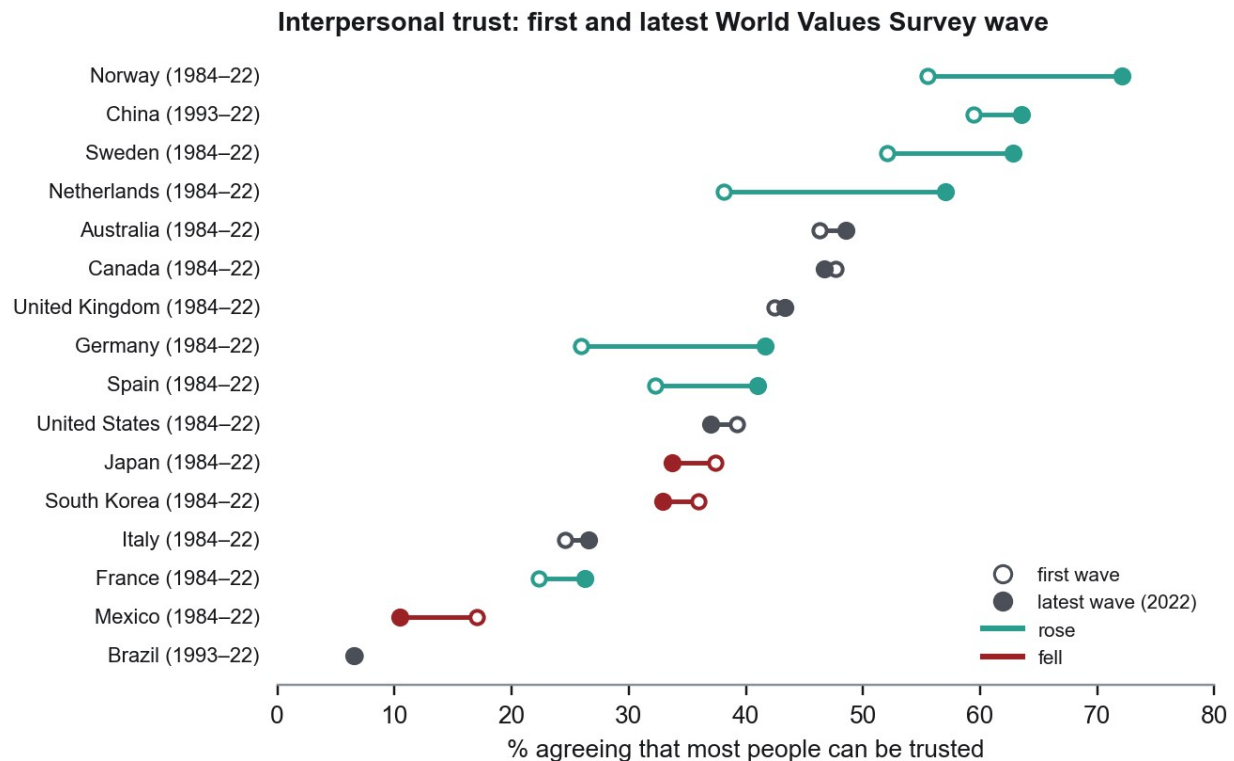


Figure 11. Interpersonal trust has not fallen everywhere. Share of respondents agreeing that 'most people can be trusted' in the first and latest World Values Survey waves for sixteen countries. Teal lines mark rises of more than three points, red lines falls of more than three points.

Source: World Values Survey and European Values Study, via Our World in Data. Latest wave fielded 2017–2022. H Heuristics chart.

This finding is important, because it shows that the decline of trust is not an automatic consequence of modernity or technology. The Nordic countries combine some of the world's highest levels of capability with the highest and rising levels of trust, and they do so with strong welfare states, low inequality, low corruption and dense associational life. Trust appears to depend more on the fairness and competence of institutions, and on economic security, than on the level of technology. That suggests that its decline elsewhere is a choice about institutions rather than a law of history, a theme taken up in Section 15.

7.3 Belonging: religion and association

In the United States, membership of churches, synagogues and mosques remained close to 70 per cent from Gallup's first measurement in 1937 until the late 1990s, and then fell rapidly, to 47 per cent in 2020, below a majority for the first time ([Gallup 2021](#)). The fall was driven mainly by the growing share of Americans with no religious preference, which rose from 8 per cent at the end of the 1990s to 21 per cent around 2020, and it is strongly generational: 66 per cent of Americans born before 1946 belonged to a congregation, compared with 36 per cent of millennials. Similar or steeper declines in religious participation have occurred across Western Europe, Canada and Australia, and more recently in parts of Latin America.

The decline of religion matters for cohesion not chiefly because of belief but because congregations have been, for most of history, the most important institutions through which people outside the family met regularly, helped one another, raised children together and organized for common purposes. Putnam estimated that about half of all American associational life was religious in character. Secular associations

have not replaced them. Membership of trade unions, fraternal organizations, parent–teacher associations and civic clubs fell from the 1960s onward, and many of the associations that grew, such as large national advocacy groups, involve paying a subscription rather than meeting other members. The result is a society with fewer of what sociologists call 'third places', neither home nor work, where people of different backgrounds encounter one another routinely.

7.4 Friendship and isolation

The [American Time Use Survey](#) allows a direct measure of time spent with other people. In 2023 the US Surgeon General issued an advisory describing an 'epidemic of loneliness and isolation', citing evidence that time spent in person with friends fell from about 60 minutes a day in 2003 to about 20 minutes a day in 2020, while time spent alone rose by about 24 hours a month ([US Surgeon General 2023](#)). The fall was steepest among people aged 15 to 24, whose time with friends fell by about 70 per cent. Part of the fall in 2020 reflects the COVID-19 pandemic, but most of the decline occurred before it.

Several explanations compete. Smartphones and social media substitute digital for physical contact. Longer working hours among the educated, longer commutes and the decline of local institutions reduce opportunities for casual contact. Smaller families mean fewer siblings, cousins and in-laws. Later marriage and lower fertility mean that fewer adults are embedded in the networks of other parents that children create. None of these is a decline in capability; several are its direct consequence.

7.5 Polarization

Cohesion also depends on the ability of people who disagree to regard one another as legitimate. Political scientists distinguish ideological polarization, disagreement about policy, from **affective polarization**, dislike and distrust of people who support the other side. In the United States, affective polarization has risen steadily since the late 1970s: partisans now rate members of the other party far more coldly than they did, are less willing to have them as neighbours or in-laws, and increasingly attribute bad motives to them ([Iyengar et al. 2019](#)). A comparison of twelve OECD countries over four decades found that affective polarization rose fastest in the United States, rose in several others, and fell in some, including Germany, Norway and Sweden ([Boxell, Gentzkow & Shapiro 2024](#)). The same pattern as for trust appears: decline is pronounced in the United States and some other countries, but is not universal.

7.6 The young

The most worrying trends concern adolescents and young adults. In the United States, Britain and several other rich countries, measures of adolescent depression, anxiety, self-harm and loneliness rose sharply from around 2012, after decades of stability, coinciding with the spread of smartphones and social media ([Twenge, Martin & Campbell 2018](#)). The causal role of social media is vigorously contested: some researchers find large effects, others find associations too small to explain the trends, and the timing differs across countries. But the decline in well-being itself is well documented, and it is concentrated in the cohorts that will form the families, institutions and electorates of the second half of the century. Young adults in many rich countries are also less likely than earlier generations at the same age to be married, to live with a partner, to own a home or to have children, trends examined in Sections 9 and 10.

7.7 Assessment

Table 10. Indicators of social cohesion: direction and scope

Indicator	United States	Other rich democracies	Grade
Interpersonal trust	Fell from about 46% (1972) to about 25% (2022) in the GSS	Rising in Nordic countries, Germany, Netherlands; falling in Japan, Korea	B (US); C (general)
Religious membership	About 70% (1937–1999) to 47% (2020)	Steep declines across Western Europe, Canada, Australia	A
Civic association	Broad decline since the 1960s	Mixed; stronger associational life in Nordic countries	B
Time with friends	About 60 to 20 minutes a day (2003–2020)	Fewer comparable data; similar trends reported	B
Affective polarization	Steep rise since the late 1970s	Rising in some, falling in others	A (US); B (general)
Adolescent well-being	Sharp deterioration since about 2012	Similar in Britain, Canada, Australia; less elsewhere	B (trend); C (cause)

The scope test is decisive for cohesion. Most indicators show a clear peak in the United States, but several show no decline, or a rise, in other rich democracies.

The cohesion dimension passes the measurement, memory, persistence and mechanism tests in the United States: the declines are measured consistently at the time, have persisted for decades and have identifiable structural drivers. It passes the scope test only in part. Religious belonging has declined across almost the whole of the rich world, and the pressures on friendship and adolescent well-being appear broadly shared. Interpersonal trust and polarization, by contrast, show divergent paths, and the countries where trust has risen are among the most advanced. The dimension is therefore graded **peak passed** for the United States and for religious and associational belonging generally (Grade B), but not for interpersonal trust across the rich world, where the evidence shows divergence rather than a common peak (Grade C). The main lesson is that cohesion is not doomed by modernity. It responds to institutions, which is where the report turns next.

08

DIMENSION V · INSTITUTIONS

8. Institutional Stability Under Strain

8.1 Confidence in institutions

Institutions are the rules and organizations through which a society makes and enforces collective decisions: governments, courts, legislatures, parties, the press, universities, churches, armies and the professions. Their stability depends on legitimacy, the belief among those subject to them that they are entitled to obedience, and legitimacy depends in part on confidence that they are competent and fair. Of all the dimensions examined in this report, institutional confidence in the United States shows the clearest and longest-lasting peak.

The Pew Research Center's series on trust in the federal government, assembled from National Election Studies, Gallup and other surveys since 1958, shows that 73 per cent of Americans trusted the government in Washington to do what is right 'just about always' or 'most of the time' in 1958 and 77 per cent in 1964 (Figure 12). Trust then fell steeply through the Vietnam War, the urban riots and Watergate, reaching about a quarter by 1980. It recovered under Reagan and in the late 1990s, spiked briefly after the attacks of 11 September 2001 and has stayed at or below 30 per cent since 2007. In September 2025 it stood at 17 per cent, among the lowest readings in nearly seven decades ([Pew Research Center 2025](#)).

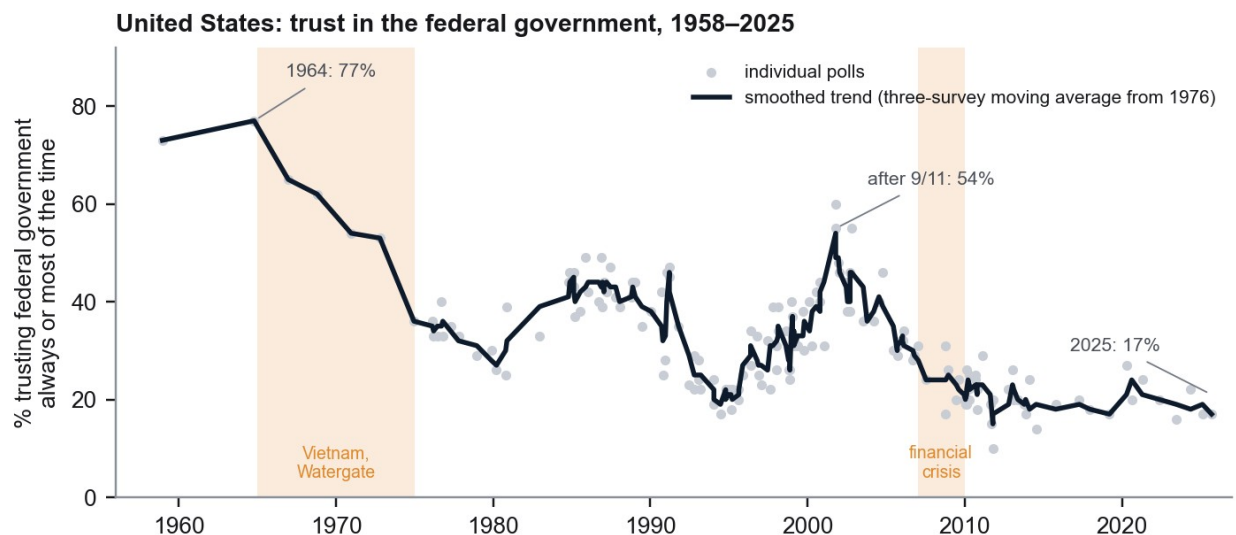


Figure 12. The long decline of trust in American government. Share of Americans who trust the federal government to do what is right 'just about always' or 'most of the time', 1958–2025. Grey points are individual polls; the line is a three-survey moving average from 1976.

Source: Pew Research Center (December 2025), from Pew, *National Election Studies*, Gallup, ABC/Washington Post, CBS/New York Times and CNN surveys. Data from 2020 are from Pew's online American Trends Panel. H Heuristics chart.

Confidence in other institutions has followed a similar path. Gallup has tracked confidence in a set of major institutions since the 1970s. Across nine institutions measured consistently since 1979, including organized religion, the military, the Supreme Court, banks, public schools, newspapers, Congress and organized labour, the average share expressing 'a great deal' or 'quite a lot' of confidence fell from 48 per cent in 1979 to 28 per cent in 2024 and 2025 ([Gallup](#)). Only small business, the military and science retained the confidence of a majority. Confidence in Congress, newspapers and television news is in the teens or lower.

The decline passes the persistence test easily: it has lasted six decades, with recoveries that proved temporary. It passes the measurement test, since the questions have been asked in the same way throughout, although the shift to online panels in 2020 introduces some discontinuity. Its scope is less clear. Trust in government has fallen in many but not all rich democracies; in the Nordic countries and Switzerland it remains high, and in several countries it rose during the early phase of the COVID-19 pandemic before falling back. The OECD's surveys of trust in government find that fewer than half of respondents across its member countries trust their national government, with wide variation between them.

8.2 The democratic recession

For most of the twentieth century, and especially after 1975, democracy spread. The share of the world's population living in electoral or liberal democracies, as classified by the [V-Dem](#) project's Regimes of the World measure, rose from under 5 per cent in 1900 to about 40 per cent in 1990 and peaked at about 54 per cent in 2001 (Figure 13). It has since declined, to about 26 per cent in 2025. Part of the decline reflects a single classification: India, home to almost a fifth of humanity, was reclassified by V-Dem from an electoral democracy to an electoral autocracy in 2017. But the decline in liberal democracy, the stricter category requiring strong protection of individual rights and constraints on executive power, is broader. The share of humanity living in liberal democracies peaked at 17.5 per cent in 1996 and fell to 7.5 per cent in 2025.

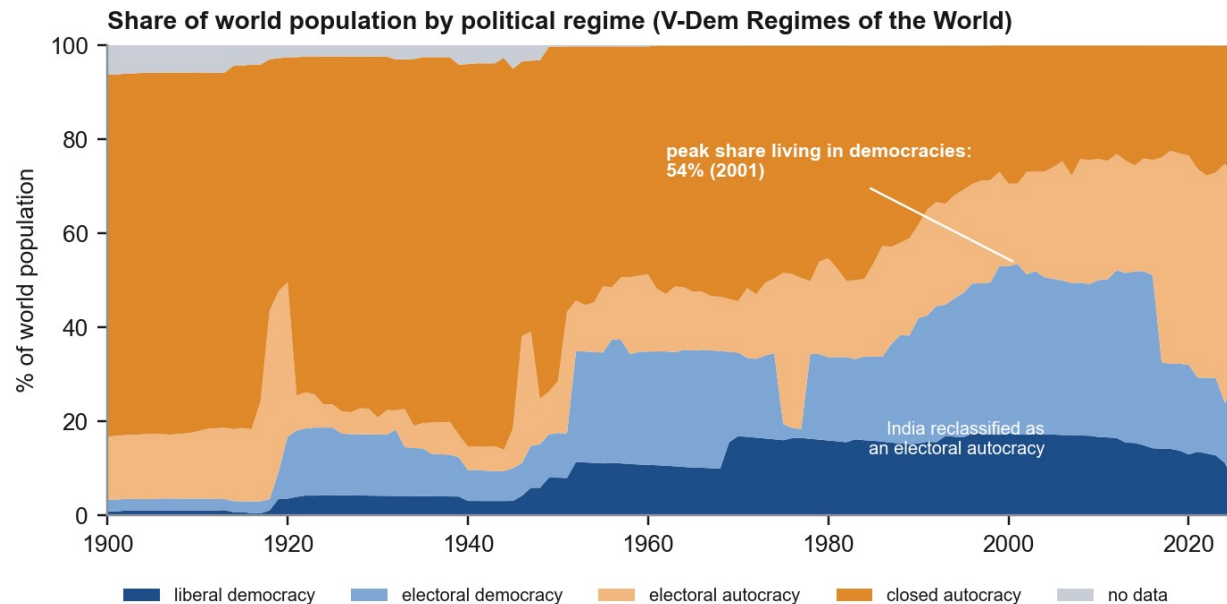


Figure 13. The democratic high-water mark. Share of the world's population living under each type of political regime, 1900–2025, as classified by V-Dem's Regimes of the World measure.

Source: V-Dem (2026) and Lührmann, Tannenberg and Lindberg, *Regimes of the World*, via Our World in Data. Population data from UN WPP and HYDE. H Heuristics chart.

V-Dem's [Democracy Report 2025](#) concluded that the level of democracy enjoyed by the average person in the world had fallen back to levels last seen around 1985, and that more countries were autocratizing than democratizing. Scholars have described this as a 'third wave of autocratization', distinguished from earlier reversals by being gradual and legal rather than abrupt: elected leaders weaken courts, media and electoral commissions while maintaining the outward forms of democracy ([Lührmann & Lindberg 2019](#)). Survey evidence suggests that commitment to democracy has also weakened among younger cohorts in some established democracies, although the interpretation of this evidence is disputed ([Foa & Mounk 2016](#)).

Whether the democratic peak is permanent is genuinely uncertain. Democracy has receded before, in the 1920s and 1930s and again in the 1960s and 1970s, and recovered. The present recession is shallower in country terms than in population terms, because it has affected several very large countries. It passes the measurement, memory and persistence tests, and its scope is global. It fails, or at least has not yet passed, the mechanism test: there is no consensus that structural forces make further decline likely, as opposed to a cycle that could reverse. It is therefore graded a **recession** rather than a confirmed peak (Grade B).

8.3 State capacity and the cost of building

A third institutional indicator is state capacity: the ability of governments to accomplish what they set out to do. Here the evidence is less systematic but suggestive. In the mid-twentieth century, rich democracies built motorways, power grids, dams, airports, universities and mass housing at a pace and cost that now seem extraordinary. Today, many of them struggle to build at all. The cost per kilometre of new urban rail in the United States is among the highest in the world, often several times that in Spain, Italy, Turkey or South Korea, and large projects routinely run years late and far over budget. Regulatory processes designed to protect the environment and local communities have lengthened approval times, multiplied

the opportunities for litigation and raised costs, while the in-house engineering expertise of public agencies has declined.

This is a peak in effectiveness rather than in legitimacy, but the two are linked. Citizens who see that their governments cannot build housing, transport or energy infrastructure at reasonable cost or speed have reason to lose confidence in them, and governments that have lost confidence find it harder to raise the taxes and mobilize the cooperation that building requires. The pattern is not universal: China, Spain and South Korea have built rapidly and cheaply in recent decades. It is, however, characteristic of the societies that led the twentieth-century expansion, and it is one of the clearest examples of capability rising, in engineering, materials and design, while the institutional capacity to deploy it falls.

8.4 Elite overproduction and the structural-demographic view

Turchin's structural-demographic theory offers a mechanism for institutional decline that does not depend on any particular scandal or leader. When the number of people seeking elite positions, in politics, law, academia, business and the professions, grows faster than the number of such positions, competition intensifies, factions form, norms of restraint erode and the losers in the competition become a pool of counter-elites who mobilize popular grievance. In the United States, Turchin argues, the expansion of higher education, the rise in the earnings premium for elite positions and the stagnation of wages for workers without degrees combined from the 1970s onward to produce precisely these conditions. His 2010 forecast of rising instability around 2020 ([Turchin 2010](#)) was made before the political turmoil of the following decade, which is one reason the theory has attracted attention. It remains contested, and its quantitative indices for modern societies rest on proxies whose validity is debated (Grade C).

8.5 Diminishing returns to complexity

Tainter's theory of diminishing returns to complexity offers a second structural mechanism, and it bears directly on the asynchronous thesis. Figure 14 presents a stylized version. A society's complexity, the number and sophistication of its institutions, technologies, rules and systems, grows steadily, here at 2 per cent a year. Gross benefits rise with complexity but with diminishing returns, while the costs of maintaining complexity rise in proportion to it. Net benefit therefore rises, peaks and declines. In the illustration, net benefit peaks in year 117, when complexity is still only 19 per cent of its eventual level, and becomes negative in year 188. Capability, measured by complexity, rises throughout. The return on it does not.

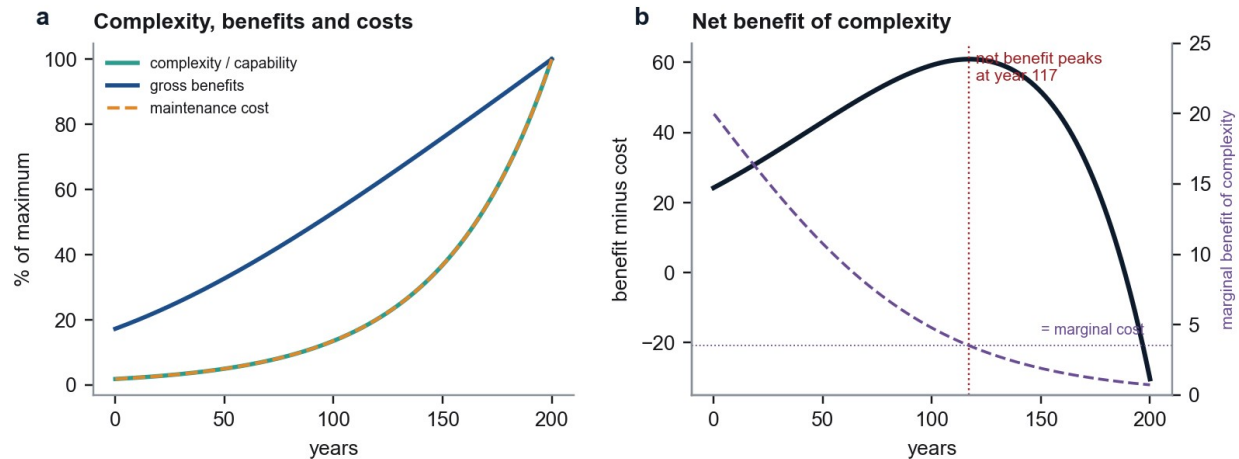


Figure 14. Net benefit can peak while complexity keeps rising. (a) Complexity grows at 2 per cent a year; gross benefits rise with diminishing returns; maintenance costs rise in proportion to complexity. (b) Net benefit peaks when the marginal benefit of further complexity (dashed) falls to its marginal cost, and then declines.

Source: H Heuristics calculation after Tainter (1988). $C(t) = e^{0.02t}$; benefits $B = 40 \ln(1 + C)$; costs $K = 3.5C$. Arbitrary units; illustrative only.

The model is not a forecast, and its parameters are arbitrary. Its value is to show that a society can be on the downward side of a peak in net benefit without any reduction in capability, and without anyone experiencing a crisis. The symptoms would be exactly those described in this section: institutions that cost more and achieve less, rules that multiply faster than their benefits, infrastructure that is harder to build and maintain, and citizens who sense, correctly, that the system demands more of them while delivering less.

8.6 Assessment

Table 11. Indicators of institutional stability

Indicator	Peak	Latest	Scope	Grade
US trust in federal government	77% (1964)	17% (2025)	Many but not all democracies	A (US)
US confidence in nine institutions	48% (1979)	28% (2025)	Similar in several democracies	A (US)
World population in democracies	54% (2001)	26% (2025)	Global	B
World population in liberal democracies	17.5% (1996)	7.5% (2025)	Global	B
Public capacity to build	Mid-twentieth century	Declining in US, UK and others	Mainly older democracies	C
Elite overproduction	Rising since the 1970s (US)	Contested indices	US-focused	C

The fall in the share living in liberal democracies in 2025 largely reflects V-Dem's reclassification of the United States from a liberal to an electoral democracy in its 2026 report; classifications of individual countries in the most recent year are subject to revision.

Institutional confidence in the United States has passed every test for a peak: it is consistently measured, recorded at the time, persistent over six decades, paralleled in several other democracies, and linked to structural mechanisms including partisan polarization, elite competition and diminishing returns to

institutional complexity. It is graded **peak passed** (Grade A for the United States, B for rich democracies generally). Democratic governance worldwide has entered a recession whose permanence is uncertain (Grade B). Together these findings support a central claim of the post-peak thesis: that the institutional order which governed the most advanced societies at the height of the twentieth century has passed its high-water mark, even as the technical capabilities available to those societies have multiplied.

09

DIMENSION VI · DEMOGRAPHY

9. The Demographic Turning Point

9.1 The most certain peak

Of all the peaks examined in this report, the demographic one is the most certain, the most consequential and the slowest to reverse. For the whole of recorded history before the eighteenth century, human populations grew slowly, held in check by high mortality. For the two centuries after, they grew rapidly, as mortality fell before fertility did. That era is now ending. The world's total fertility rate, the average number of children a woman would have over her lifetime at current rates, peaked at 5.31 in 1963 and had fallen to 2.25 by 2023, barely above the replacement level of about 2.1 (Figure 15). The UN projects that it will fall to 1.84 by 2100 ([UN WPP 2024](#)).

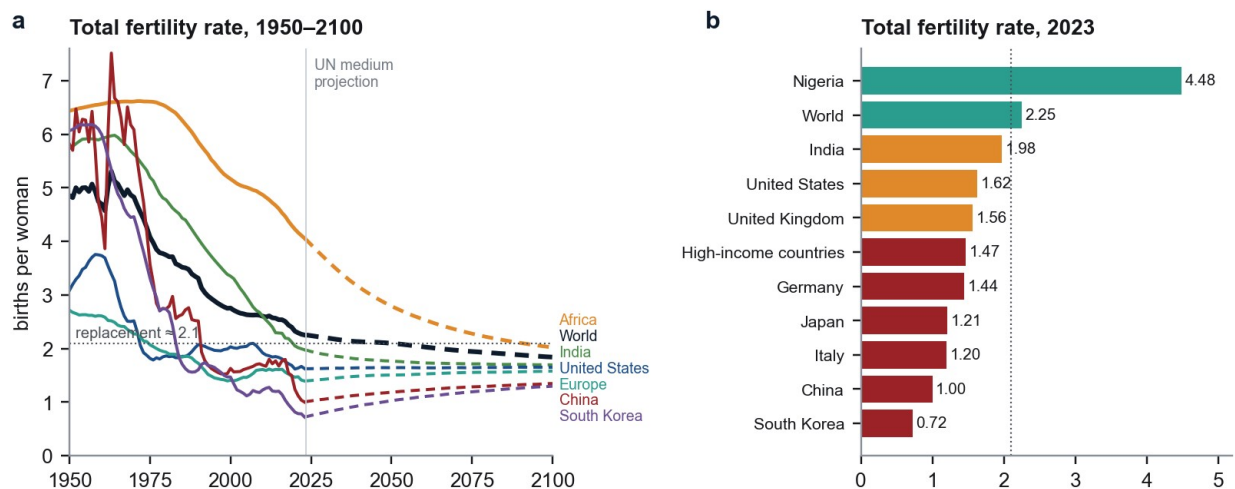


Figure 15. The fertility turning point. (a) Total fertility rate for the world and selected countries and regions, 1950–2023, with the UN medium projection to 2100 (dashed). (b) Total fertility rate in 2023.

Source: UN World Population Prospects 2024, via Our World in Data. H Heuristics chart.

The decline has been fastest in East Asia. South Korea's fertility rate fell from about six in 1960 to 0.72 in 2023, the lowest of any country in the world, before edging up to 0.75 in 2024 ([Statistics Korea, via Al Jazeera](#)). China's fell to about 1.00, Japan's and Italy's to about 1.2, and the average across high-income countries to 1.47. The United States, long an exception among rich countries, has fallen to about 1.6. India's rate fell below replacement around 2020. Only in sub-Saharan Africa, and in a handful of countries elsewhere, does fertility remain well above replacement, and there too it is falling. In 2023, more than half the world's countries and territories, home to about three-quarters of humanity, had fertility below replacement.

Projections of when this will lead to a peak in world population differ. The UN's medium projection is that population will rise from 8.16 billion in 2024 to a peak of about 10.3 billion in 2084 and decline slowly thereafter. The Institute for Health Metrics and Evaluation projects lower fertility and an earlier peak, of about 9.7 billion in the mid-2060s ([Vollset et al. 2020](#)), and its more recent analysis projects that by 2100, 97 per cent of countries will have fertility below replacement ([GBD 2021 Fertility Collaborators 2024](#)). Many demographers regard the UN's assumption that low fertility will recover partially toward 1.8 as optimistic, since no country that has fallen below about 1.3 has recovered to near replacement. Either way, the peak of humanity's numbers is now within the lifetime of children alive today.

Finding. Fertility has passed its peak almost everywhere, and world population will peak within this century. Of all the dimensions examined, demography is the one where the post-peak thesis is most clearly established (Grade A).

9.2 The redistribution of humanity

Because fertility has fallen at different times in different regions, the demographic peak is also a geographical redistribution (Figure 16). In 1950, Europe and Northern America together held about 29 per cent of the world's population. By 2024 they held 14 per cent, and by 2100 they are projected to hold about 10 per cent. Africa's share rises from 9 per cent in 1950 to 19 per cent today and a projected 37 per cent in 2100. Europe's population peaked around 2020; China's in 2021, and on the UN's projection it falls to about 633 million by 2100, less than half its peak. South Korea's population, about 52 million today, is projected to fall to about 22 million.

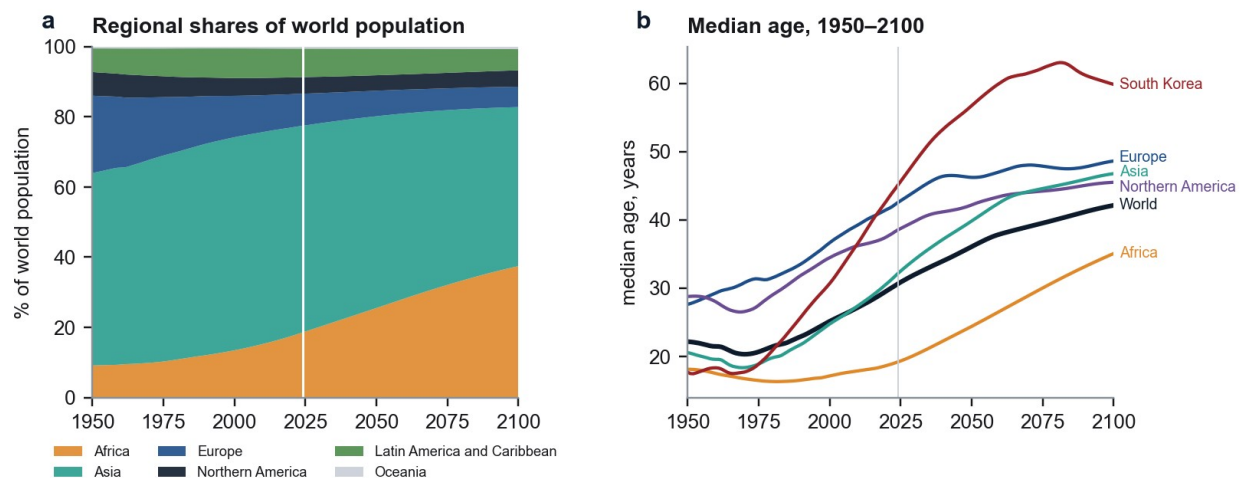


Figure 16. The redistribution and ageing of humanity. (a) Regional shares of world population, 1950–2100. (b) Median age, 1950–2100. Values after 2024 are UN medium projections.

Source: UN World Population Prospects 2024, via Our World in Data. H Heuristics chart.

The world is also ageing. The median age of humanity was 22 in 1950 and is 31 today; it is projected to reach 42 by 2100. In South Korea it is projected to reach about 60. A world with a median age in the forties has never existed. Its politics, economics and culture will be shaped by the preferences of older people to an unprecedented degree: for security over risk, for health spending over education, for the protection of existing assets over the construction of new ones.

9.3 The arithmetic of momentum

Demographic change is slow to start and slow to stop, because it is built into the age structure of the population. Figure 17 shows a cohort projection of a stylized population, initially stationary with replacement fertility and a life expectancy of about 85.5 years, in which fertility is suddenly set to a new level and held there. At a fertility rate of 1.8, close to the UN's long-run assumption for many countries, the population falls to 73.6 per cent of its initial size after a century. At 1.5, roughly the average for high-income countries, it falls to 50.3 per cent. At 1.2, the rate in Japan, Italy and Spain, it falls to 32.6 per cent. And at 0.75, South Korea's current rate, it falls to 58.1 per cent within fifty years and 14.6 per cent within a century: each generation is barely more than a third the size of the one before.

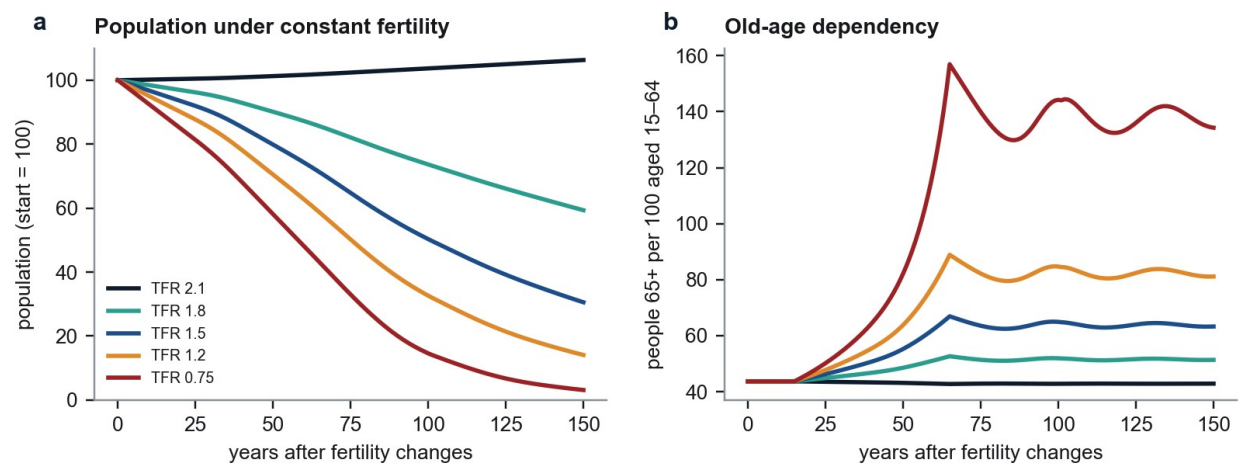


Figure 17. The arithmetic of low fertility. (a) Population of a stylized country, initially stationary, after fertility is set to the level shown and held constant. (b) Old-age dependency: people aged 65 and over per 100 people aged 15–64. Source: H Heuristics calculation. Single-year cohort projection with Gompertz–Makeham mortality (life expectancy at birth about 85.5 years), a fertility schedule centred on age 31, no migration, and a starting population stationary at replacement. Illustrative only.

The burden of supporting the old rises in proportion. In the stationary population, there are about 43 people aged 65 and over for every 100 of working age. At a fertility rate of 1.5, the ratio rises to about 65 within a century; at 1.2, to about 85; and at 0.75, to about 144, more older people than people of working age. No pension system, health system or labour market has been designed for such a structure. The projection is stylized, and migration, rising retirement ages and higher productivity can soften its effects. But it shows why demographic decline, once established, is self-reinforcing: a smaller generation of parents produces fewer children even at the same fertility rate, and an older electorate has less reason to fund the housing, childcare and education that might raise it.

9.4 Why fertility has fallen

The causes of the fertility decline are debated, but several are well established. The first is **the success of modernity itself**: falling child mortality, which removes the need to have many children to ensure that some survive; urbanization, which turns children from economic assets on the farm into economic costs in the city; and the education and employment of women, which raises the opportunity cost of time spent raising children. These forces explain the decline from high fertility to around replacement level, and they are, from most points of view, desirable.

They do not explain why fertility has continued to fall well below replacement, and below the number of children people say they want. In surveys across Europe, East Asia and the United States, the average

number of children people say they would ideally like remains close to two, while actual fertility is far lower. The gap points to constraints. Economists studying the 'new era' of fertility note that in rich countries, fertility is now higher where women's employment is higher, not lower, and that what matters is whether work and family can be combined: affordable childcare, flexible employment, fathers' participation in child-rearing, and housing large enough for a family (Doepke et al. 2023). The lowest fertility is found where those conditions are weakest, as in South Korea, where long working hours, intense educational competition, expensive housing in a capital region holding half the population, and traditional expectations of mothers combine with a highly educated female workforce.

A further set of explanations concerns partnership and culture. In many rich countries, the age of first marriage and first birth has risen sharply, and the share of young adults living with a partner has fallen. Some researchers attribute part of the post-2007 decline in the United States to the financial crisis and rising housing costs; others to a broad shift in priorities toward education, career, travel and self-development; others to the effects of smartphones and social media on dating and partnership. These explanations are not exclusive, and they connect the demographic dimension directly to the cohesion and affordability dimensions examined in Sections 7 and 10.

9.5 Can it be reversed?

Many governments have tried to raise fertility, with modest results. France and the Nordic countries, with generous and long-standing family policies, have had among the highest fertility rates in Europe, but even they have seen declines since about 2010, to between 1.4 and 1.7. Hungary's substantial programme of tax breaks and housing subsidies for families was followed by a rise in fertility from about 1.2 to about 1.6, before falling back. South Korea has spent very large sums on pro-natal policies since 2006 without halting the decline until a small uptick in 2024. The evidence suggests that policy can raise fertility at the margin, by a few tenths of a child per woman, and can help people achieve the families they want, but that it cannot by itself restore replacement fertility in societies where the underlying conditions of work, housing and partnership discourage it.

Table 12. The demographic turning point: key indicators

Indicator	Peak or past value	Latest or projected	Grade
World total fertility rate	5.31 (1963)	2.25 (2023); 1.84 (2100, UN)	A
Countries below replacement fertility	Few before 1970	More than half (2023); 97% by 2100 (IHME)	A
World population	—	Peak 10.3 bn in 2084 (UN); about 9.7 bn in the 2060s (IHME)	A
Europe and Northern America share of world population	29% (1950)	14% (2024); 10% (2100)	A
World median age	22 (1950)	31 (2024); 42 (2100)	A
Population at fertility 0.75 after 100 years (model)	100	14.6 (stylized)	Illustrative

UN figures are from the medium variant of World Population Prospects 2024; IHME figures from Vollset et al. (2020) and the GBD 2021 fertility analysis (2024).

9.6 Assessment

The demographic dimension passes all five tests. The decline in fertility is measured by vital registration, not memory; it has persisted for decades; it is found across almost every society that has modernized; and demographic momentum is the strongest structural mechanism examined in this report. It is graded **peak passed** (Grade A). The peak in population itself lies ahead, but it is already committed by the fall in fertility that preceded it. The demographic turning point is also the clearest example of asynchrony: the decline in fertility that began in the 1960s, driven by the success of capability in reducing mortality and expanding opportunity, is now producing population decline in the 2020s and will shape the age structure of humanity through the twenty-second century. Of all the ways in which progress in one dimension can produce regression in another, this is the most consequential, and the most difficult to undo.

10

DIMENSION VII · MATERIAL LIFE



10. The Affordability Paradox

10.1 Richer, and unable to afford a home

By the standard measures of economics, the citizens of rich countries are wealthier than any people in history. Real income per head in the United States is roughly three times what it was in 1960. Yet a large and growing share of people in those countries report that they cannot afford the things that earlier generations regarded as the ordinary foundations of adult life: a home, children, childcare, higher education and medical care. This section examines that paradox. It finds that it is real, that it is concentrated in a specific set of goods and services, and that it has a precise economic explanation that links it directly to the advance of capability.

10.2 The housing squeeze

The clearest measure of the problem is the price of a home relative to income. In the United States, the median price of a new home sold was about 3.6 times median household income in 1984 (Figure 18). The ratio rose through the housing boom of the 2000s, fell after the financial crisis and then rose to a record 5.8 in 2022; it stood at 4.7 in 2025. Harvard's Joint Center for Housing Studies, using existing homes, found that the median price reached a record of more than \$412,000 in 2024, five times median household income, against a traditional affordability benchmark of about three; that half of all renter households, a record 22.6 million, spent more than 30 per cent of their income on housing in 2023; and that about 12.1 million spent more than half ([JCHS 2025](#)). The median age of first-time home buyers in the United States has risen to about 40, according to the National Association of Realtors.

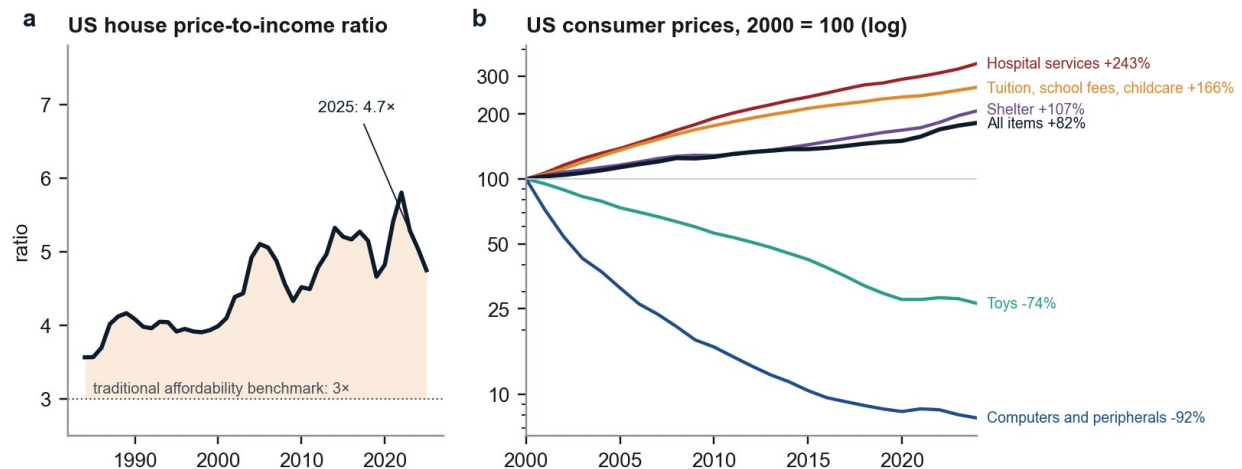


Figure 18. The affordability paradox. (a) Median sales price of new houses in the United States divided by median household income, 1984–2025. (b) US consumer price indices for selected goods and services, 2000–2024 (2000 = 100, logarithmic scale).

Source: US Census Bureau and HUD, Median Sales Price of Houses Sold (MSPUS); Census Bureau, Median Household Income (MEHOINUSA646N); and Bureau of Labor Statistics consumer price indices for all items, computers and peripherals, toys, tuition and childcare, hospital services and shelter, all via FRED. Annual averages. H Heuristics calculation.

The housing squeeze is not confined to the United States. In Canada, Australia, New Zealand, the United Kingdom, Ireland, the Netherlands and the large cities of much of Europe and East Asia, house prices have risen far faster than incomes since the 1990s. Seoul, where the ratio of apartment prices to income is among the highest in the world, is also the capital of the country with the lowest fertility. The connection is not a coincidence. Surveys of young adults in many countries identify the cost of housing as one of the main reasons for delaying marriage and children, and studies across regions find that higher housing costs are associated with lower fertility among those who do not already own homes.

The proximate cause is a shortage of housing in the places where people most want to live, because supply has failed to keep up with demand. In productive cities, restrictions on land use, height, density and the type of building permitted have held construction far below what the market would otherwise supply, so that prices have risen well above the cost of construction ([Glaeser & Gyourko 2018](#)). These constraints also prevent workers from moving to the most productive places, reducing aggregate growth ([Hsieh & Moretti 2019](#)). Housing is therefore one of the clearest cases of institutional capacity, examined in Section 8, failing to keep pace with capability: societies that can build almost anything have made it very difficult to build homes.

10.3 Baumol's cost disease

The second part of Figure 18 shows a broader pattern. Between 2000 and 2024, the overall US consumer price index rose by 82 per cent. Over the same period, prices of computers and peripherals fell by 92 per cent and of toys by 74 per cent, while prices of hospital services rose by 243 per cent, of tuition, school fees and childcare by 166 per cent and of shelter by 107 per cent. Manufactured goods became dramatically cheaper. The services on which family life depends became dramatically more expensive.

This is the pattern predicted by the economist William Baumol in the 1960s, and known as [Baumol's cost disease](#). In some sectors, such as manufacturing and computing, technology raises productivity rapidly: each worker can produce far more each year. In others, such as teaching, nursing, caring for children, performing music or building houses on site, productivity rises slowly, because the service consists

largely of human time and attention. Wages, however, must rise across the whole economy, or workers would leave the slow sectors for the fast ones. The result is that the relative price of the slow-productivity services rises steadily. A string quartet requires as many musicians and as much time as it did in 1800; a teacher can teach only so many children; a nurse can care for only so many patients.

The affordability paradox. Advancing capability makes the products of technology steadily cheaper and the products of human care steadily dearer. Because family life depends overwhelmingly on the second, a society can grow richer while finding it harder to afford a home, raise children, educate them and care for the sick and old.

Baumol's insight is central to the post-peak thesis because it shows that the affordability problem is not a failure of capability but a consequence of it. The faster technology raises productivity in goods, the faster the relative price of care, education, housing and health rises. Average real incomes rise, so society as a whole can still afford more of everything. But the burden falls unequally, especially on young adults at the stage of life when they are forming households and having children, and whose incomes have not yet risen to match the costs. The goods that have become cheap, televisions, phones, clothing and toys, are those that matter least to whether a young couple feels able to start a family. The goods that have become expensive are those that matter most.

10.4 Health, education and the life course

The same pattern runs through the life course. A university education in the United States costs several times more in real terms than it did in 1980, and student debt has become a significant burden on young adults. Childcare for an infant costs more than a year's in-state university tuition in many states. Health-care spending absorbs about 17 per cent of US national income, the highest share in the world, while American life expectancy has stalled (Section 4). In other rich countries, where governments pay directly for health and education, the costs appear as rising taxes and strained public budgets rather than as household bills, but the underlying dynamic is the same, and it is intensified by ageing, which raises demand for exactly the labour-intensive services whose relative price is rising.

Table 13. The two halves of the affordability paradox, United States, 2000–2024

Became cheaper	Change	Became dearer	Change
Computers and peripherals	–92%	Hospital services	+243%
Toys	–74%	Tuition, school fees and childcare	+166%
(All items, for comparison)	+82%	Shelter	+107%
Median new-home price ÷ household income, 1984	3.6×	Median new-home price ÷ household income, 2025	4.7× (peak 5.8× in 2022)

Price changes are for BLS consumer price indices, annual averages. They measure the price of a constant-quality item; quality improvements in computers and medical care mean that they do not capture changes in what money buys.

10.5 Assessment

The affordability dimension passes the measurement, memory and persistence tests: prices and incomes are measured contemporaneously and consistently, and the divergence has persisted for decades. It passes the scope test across most rich countries, with variation in the extent of housing shortages. And it has a strong structural mechanism, Baumol's cost disease, compounded by land-use regulation and

ageing. It is graded **deteriorating** (Grade B). It is the clearest case in the report of a dimension whose decline is a direct product of advancing capability, and it forms a central link in the chain that connects capability to falling fertility and weakening cohesion, examined in Section 13.

11

DIMENSION VIII · ECOLOGY

11. The Ecological Ledger

11.1 The dimension that peaked first

If the post-peak thesis is tested against the natural world on which every other dimension depends, the result is unambiguous. Ecological stability, the relatively stable climate, biodiversity and biogeochemical cycles of the Holocene epoch within which agriculture and civilization developed, peaked before any of the social indicators examined in this report, and probably before reliable measurement began. The decline has been driven by the same expansion of capability that the rest of the report documents: the energy, chemistry, machinery and logistics that made modern prosperity possible also multiplied the material throughput of the human economy. Scientists call the post-1950 surge in population, energy use, fertilizer use, water use, travel and telecommunications, and the corresponding surge in carbon dioxide, methane, nitrogen, ocean acidification and land conversion, the **Great Acceleration** ([Steffen et al. 2015](#)).

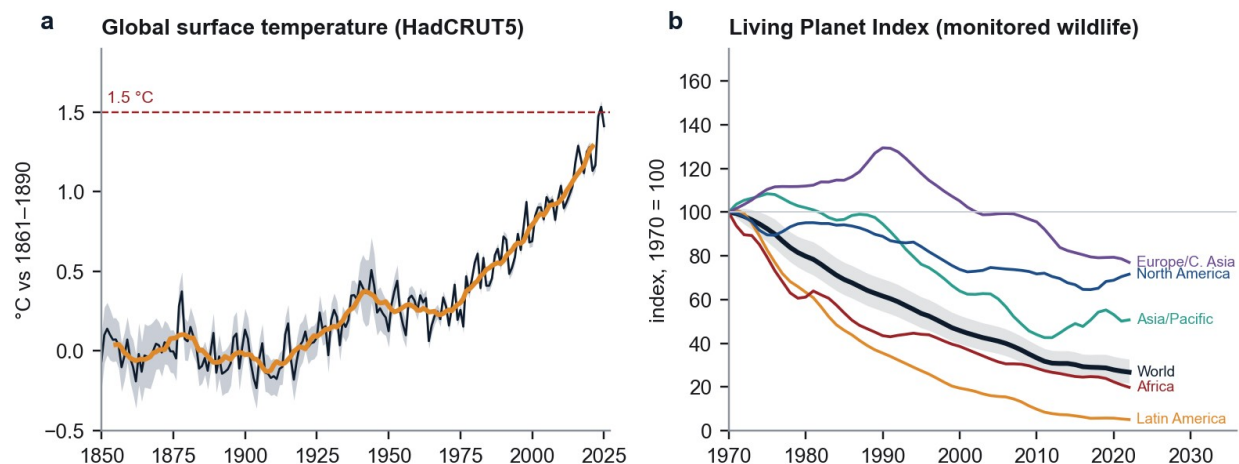


Figure 19. The ecological ledger. (a) Global mean surface temperature relative to 1861–1890, annual (navy) and ten-year mean (orange), with the 95 per cent confidence interval (grey). (b) The Living Planet Index of monitored vertebrate populations by region, 1970 = 100.

Source: Met Office Hadley Centre HadCRUT5 and WWF/ZSL Living Planet Index 2024, via Our World in Data. H Heuristics chart.

Two indicators summarize the ledger (Figure 19). Global surface temperature has risen by about 1.5 °C since the late nineteenth century; on the HadCRUT5 record, 2024 was 1.53 °C above the 1861–1890 baseline, the warmest year on record and the first calendar year above 1.5 °C on several datasets ([WMO](#)). And the Living Planet Index, which tracks about 35,000 populations of nearly 5,500 species of vertebrates, shows an average decline of 73 per cent between 1970 and 2020, with the steepest falls in Latin America and the Caribbean and in Africa ([WWF Living Planet Report 2024](#)). The index measures the average change in the size of monitored populations rather than the number of animals or species,

and it is sensitive to steep declines in a minority of populations, but the direction of change is consistent with every other measure of biodiversity.

11.2 Planetary boundaries

The planetary-boundaries framework, introduced in 2009 ([Rockström et al. 2009](#)), defines nine processes that regulate the stability of the Earth system and proposes quantitative limits within which humanity can operate safely. By 2023, six of the nine boundaries had been transgressed ([Richardson et al. 2023](#)); the 2025 Planetary Health Check added ocean acidification, making seven of nine ([Planetary Health Check 2025](#)). Only stratospheric ozone, which is recovering because of the Montreal Protocol, and atmospheric aerosol loading remain within their safe limits globally.

Table 14. Status of the nine planetary boundaries

Boundary	Status (2025)	Main driver
Climate change	Transgressed, rising	Fossil-fuel combustion, deforestation
Biosphere integrity	Transgressed, rising	Land conversion, harvesting, climate
Land-system change	Transgressed, rising	Agriculture and forestry
Freshwater change	Transgressed, rising	Irrigation, dams, climate
Biogeochemical flows (nitrogen, phosphorus)	Transgressed, rising	Fertilizer use
Novel entities (synthetic chemicals, plastics)	Transgressed, rising	Industrial chemistry
Ocean acidification	Transgressed (from 2025)	Carbon dioxide absorbed by the ocean
Atmospheric aerosol loading	Within boundary globally; exceeded regionally	Combustion, dust
Stratospheric ozone depletion	Within boundary, recovering	Montreal Protocol phase-out of CFCs

Status as assessed in Richardson et al. (2023) and the Planetary Health Check 2025. The ozone case shows that coordinated international action can reverse a transgressed boundary.

11.3 Why ecological decline is the most persistent

Ecological decline differs from the other dimensions in one crucial respect: much of it is effectively irreversible on human time scales. A large share of the carbon dioxide emitted today will remain in the atmosphere for centuries, and a fraction for many thousands of years. Sea level will continue to rise for centuries after emissions stop. Extinct species do not return. The other dimensions examined in this report can recover within decades: trust can be rebuilt, institutions reformed, fertility can rise, and cultural forms renew themselves. The ecological dimension sets limits within which those recoveries must take place, and the narrower those limits become, the harder the other recoveries will be. Earlier H Heuristics work on [the polycrisis](#) examined how ecological stress couples to food, water, health, migration and conflict; the most severe climate scenarios, though not the most likely, include the possibility of cascading failures that could threaten civilization itself ([Kemp et al. 2022](#)).

The ecological ledger also contains genuine progress, and it is important for the asynchronous thesis. Air pollution has fallen dramatically in Europe and North America since the 1970s, and more recently in China. The ozone layer is healing. Emissions of carbon dioxide have peaked in the European Union, the United Kingdom, the United States and Japan, and the falling cost of solar, wind and battery storage

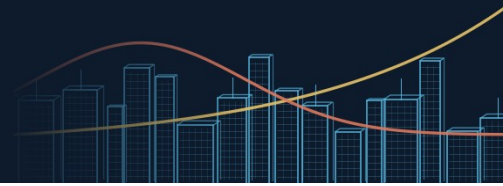
(Figure 6) means that capability is now, for the first time, working to reduce material damage rather than to increase it. Whether that turn comes fast enough is the decisive ecological question of the century.

11.4 Assessment

The ecological dimension passes every test. Its decline is measured instrumentally, persistent, global and driven by a powerful structural mechanism, the coupling of economic growth to material throughput. It is graded **peak passed** (Grade A). The ecological peak is also the clearest case of asynchrony in the report: ecological stability began to decline when capability began its great acceleration, and the two have moved in opposite directions ever since. The great hope of the coming decades is that this coupling can be broken, so that capability rises while ecological damage falls. The early evidence from energy and air pollution shows that this is possible. It does not yet show that it is happening fast enough.

12

THE GLOBAL PICTURE



12. The Great Redistribution

12.1 Decline or redistribution?

Much of the evidence reviewed so far comes from the United States and other rich democracies. That raises the question posed by the Western version of the thesis in Section 1: is post-peak a condition of humanity, or of the particular societies that led the modern world? This section examines the global distribution of economic output, scientific capability and population, and finds that the answer is both. The West's relative position has unambiguously passed its peak. But the patterns that define the post-peak condition, falling fertility, ageing and in some cases eroding cohesion, are spreading with modernity itself, and are appearing in the rising powers sooner, and at lower levels of income, than they did in the West.

12.2 The shift in economic weight

In 1980, the seven largest Western-aligned economies, the G7 of the United States, Japan, Germany, the United Kingdom, France, Italy and Canada, produced about 52 per cent of world output measured at purchasing-power parity, which adjusts for differences in prices between countries (Figure 20). Their share held near that level through the 1980s and then declined steadily, to 29 per cent in 2024; the IMF projects 26 per cent by 2030 ([IMF World Economic Outlook](#)). China's share rose from about 2 per cent to 19 per cent over the same period, overtaking the United States (15 per cent) on this measure in the mid-2010s. India's share rose to about 8 per cent and is projected to reach about 10 per cent by 2030.

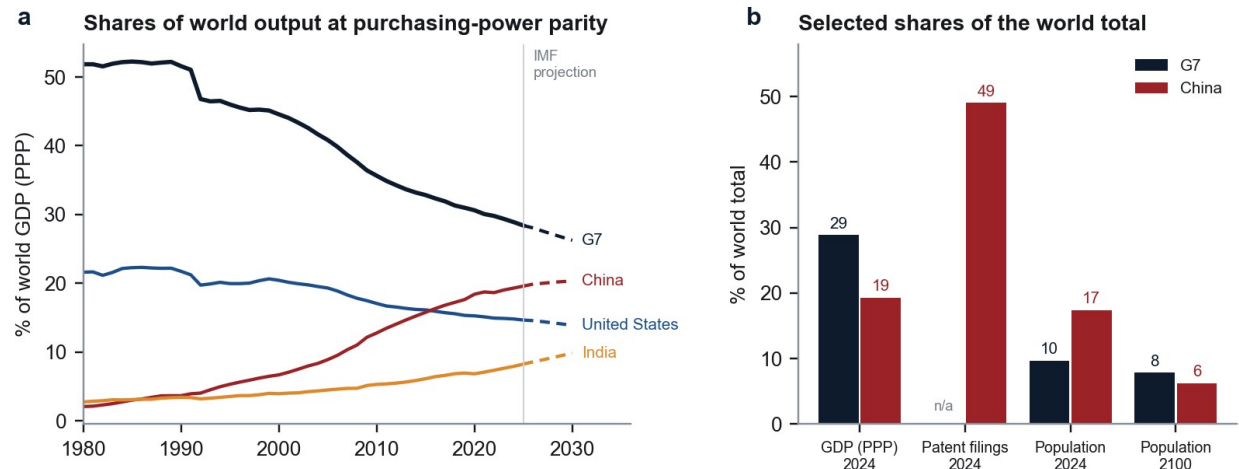


Figure 20. The great redistribution. (a) Shares of world output at purchasing-power parity, 1980–2030, for the G7, the United States, China and India; values after 2025 are IMF projections. (b) G7 and Chinese shares of world output, patent applications and population.

Source: IMF World Economic Outlook database (PPPSH), October 2025 edition; WIPO World Intellectual Property Indicators 2025 (patent applications, 2024; no G7 aggregate shown); UN World Population Prospects 2024. H Heuristics chart.

This is the end of what historians call the **Great Divergence**, the period after about 1800 during which Western Europe and its offshoots pulled away from the rest of the world in income and power. For most of recorded history, China and India together produced a large share of world output, because they held a large share of the world's people. The divergence was an exception produced by the West's earlier industrialization, and its reversal through the spread of industrialization to Asia is, from a global perspective, the most important economic event of the last half-century. It has lifted more people out of poverty than any other process in history. That the West's share has fallen is a consequence of others catching up, not of the West becoming poorer: real incomes in the G7 have continued to rise.

12.3 The shift in scientific capability

The redistribution of capability is following the redistribution of output with a lag. China now files about half of all patent applications in the world, 49 per cent in 2024, up from 35 per cent a decade earlier ([WIPO 2025](#)), and has led the [Nature Index](#) of contributions to high-quality scientific journals since 2023. It produces more science and engineering graduates than any other country, leads the world in the deployment of solar power, batteries, electric vehicles and high-speed rail, and competes at the frontier in artificial intelligence. For the asynchronous thesis, this is important evidence that the capability curve of Figure 6 is a property of the human system as a whole, not of any one civilization. The frontier can continue to advance even as the societies that created the modern scientific enterprise lose their share of it.

12.4 The shift in people

The demographic redistribution is the largest and most durable of the three. The share of humanity living in Europe and Northern America has fallen from 29 per cent in 1950 to 14 per cent today and is projected to fall to about 10 per cent by 2100. The G7's share of world population, about 10 per cent today, is projected to be about 8 per cent in 2100. China's share is falling too, because its own fertility collapse has made it one of the fastest-ageing large countries in history. The demographic future belongs to South Asia and, above all, to Africa, which is projected to hold about 37 per cent of humanity by 2100. Nigeria

alone is projected to have a larger population than the United States before the end of the century ([UN WPP 2024](#)).

12.5 The spreading peak

The most important finding of this section is that the rising powers are not escaping the post-peak pattern. They are entering it faster. Western Europe took about a century to move from high fertility to below replacement; South Korea took about 25 years and China about 20. China's population peaked in 2021, at an income per head about a quarter of the American level, whereas Japan's peaked when it was already rich. Thailand, Iran, Brazil, Chile, Colombia, Mexico, Turkey and Vietnam all have fertility at or below replacement. India's fertility is below replacement at a level of income far lower than that at which any Western country reached it. Demographers describe the danger as **growing old before growing rich**: societies acquiring the age structure of the rich world without its accumulated wealth, pensions and health systems.

The spread of the cohesion pattern is less clear. Interpersonal trust is high and rising in China on the World Values Survey (Figure 11), although survey responses in an authoritarian state are hard to interpret. Religious participation has fallen in parts of Latin America. Trust has fallen sharply in Mexico. The fragmentation of shared culture is global, because the platforms that fragment attention are global. What can be said with confidence is that the forces examined in Section 13, Baumol's cost disease, the attention economy, the opportunity cost of children and the rising complexity of modern systems, are properties of technological modernity, not of the West, and should be expected to operate wherever modernity spreads.

Table 15. Where the world's regions stand on the post-peak dimensions

Region	Fertility	Population	Global share	Cohesion signals
Western Europe	Below replacement since the 1970s	Peaked about 2020	Falling	Belonging falling; trust mixed, high in the north
North America	Below replacement since the 2000s (US)	Growing via migration	Falling (US share slowly)	Trust and confidence at record lows (US)
East Asia	Lowest in the world (0.7–1.2)	Peaked: Japan 2009, China 2021, Korea 2020	China rising; Japan falling	Trust falling in Japan and Korea; high in China
South Asia	Near or below replacement (India)	Peak in the 2060s (India)	Rising	Democratic recession (India)
Latin America	Below replacement in most countries	Peak in the 2050s	Stable	Low and falling trust in several countries
Sub-Saharan Africa	High but falling (about 4.4)	Growing to 2100	Rising from a low base	Varies widely

A summary of evidence reviewed in Sections 7–12. 'Global share' refers to shares of world output and population.

12.6 Assessment

The Western version of the post-peak thesis is supported for relative economic, scientific and demographic weight: the West's share of the world has passed its peak and will not return to it (Grade A). It is a redistribution, however, not a decline in absolute terms, and from a global perspective it represents one of the greatest gains in human welfare in history. The asynchronous version of the thesis is

strengthened by the global evidence: the demographic and, in part, the cohesion dimensions of the post-peak pattern are appearing in every society that modernizes, and appearing sooner. Post-peak is not a Western peculiarity. It is the leading edge of a condition that technological modernity tends to produce wherever it goes, and the West is simply the first civilization to have arrived there.

13

MECHANISMS

13. Why Capability and Cohesion Diverge

13.1 The scissors

The preceding sections examined each dimension separately. This section asks whether their divergence is a coincidence, the chance overlap of separate trends with separate causes, or a pattern with common roots. Figure 21 brings the evidence for the United States together. It combines three indicators of capability, the logarithm of transistors per chip, output per hour and life expectancy, into a composite, and three indicators of cohesion and social reproduction, trust in the federal government, the fertility rate and the ratio of household income to house prices, into a second composite. Each component is rescaled so that its lowest value between 1971 and 2024 is zero and its highest is one.

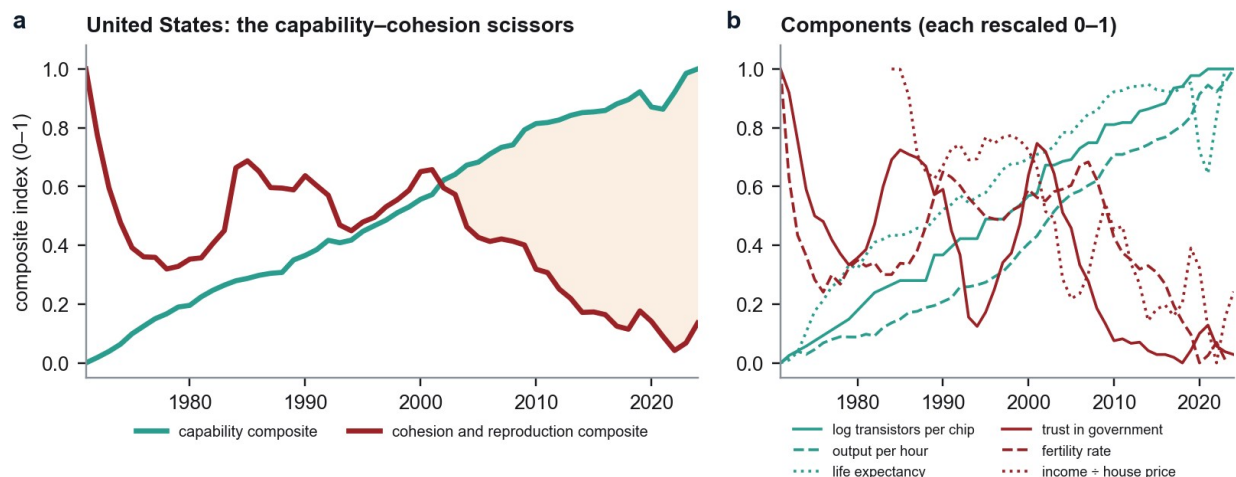


Figure 21. The capability-cohesion scissors in the United States, 1971–2024. (a) Composite indices of capability (log transistors per chip, output per hour, life expectancy) and of cohesion and social reproduction (trust in federal government, total fertility rate, income relative to house prices), each the mean of components rescaled to 0–1 over the period. (b) The six components.

Source: H Heuristics calculation from Our World in Data (transistors; UN WPP 2024 life expectancy and fertility), BLS output per hour, Census Bureau house prices and incomes (via FRED) and Pew Research Center trust series. The affordability component begins in 1984. Illustrative composites; the choice of components affects the result.

The result is a pair of scissors. The capability composite rises almost without interruption, from 0 in 1971 to 1.00 in 2024. The cohesion composite falls from 1.00 to 0.14, with a partial recovery in the late 1980s and 1990s, and crosses below the capability composite around 2002. The correlation between the levels of the two composites over the period is -0.67. The correlation between their year-to-year changes is 0.03, essentially zero: the two do not move together in the short run. They diverge in the long run. The composites are crude, and different components would produce different curves. But the basic shape,

rising capability alongside falling cohesion and reproduction, appears for any reasonable choice of American indicators, and it is the pattern the post-peak thesis predicts.

Why should this happen? Ibn Khaldun's answer, that the conditions of success erode the solidarity that produced it, is suggestive but too general to test. Figure 22 sets out seven more specific mechanisms, each supported by evidence reviewed in earlier sections, through which advancing capability can itself put pressure on cohesion, reproduction, affordability and ecological stability.



Figure 22. Seven mechanisms linking advancing capability to pressure on other dimensions of civilization. Each mechanism converts a gain in capability into a cost borne by a different dimension. The feedback arrow shows how those costs can eventually limit capability itself.

Source: H Heuristics synthesis of the evidence in Sections 4–12.

13.2 Seven mechanisms

1. Baumol's cost disease. Technology raises productivity fastest in manufacturing and information, and slowest in care, education, construction and other services that consist largely of human time. The relative price of the second group therefore rises (Section 10). Because the foundations of family life, a home, childcare, education and health, fall overwhelmingly in the second group, rising capability makes them progressively more expensive relative to everything else. This is the most robust of the mechanisms, because it follows from arithmetic rather than behaviour.

2. The attention economy. Digital technology has made the supply of information, entertainment and social contact effectively infinite, while human attention remains finite. When supply grows by orders of magnitude, attention divides into niches, the ceiling on shared attention falls (Figure 9) and attention cycles accelerate. The result is the loss of common reference points examined in Section 6, and, through the business models of platforms that profit from engagement, an incentive to supply content that provokes outrage and division. Shared culture is not destroyed; it is out-competed.

3. Mobility and markets. Capability raises the returns to moving: to cities, to the most productive firms, to wherever opportunity is greatest. People move away from extended families, home towns and congregations, and the local institutions that depended on stable populations weaken. Markets also replace, with paid services, many functions that families and communities once performed for one another, from childcare to entertainment to the care of the old. Each substitution may be efficient; together they thin the networks of mutual obligation on which cohesion rests (Section 7).

4. The opportunity cost of children. As capability raises the value of education and skilled work, it raises the cost, in forgone income and career progress, of the time spent raising children. Combined with the rising price of housing and childcare and the lengthening of education, it pushes partnership and parenthood later, and later parenthood means fewer children (Section 9). This is the mechanism by which the success of modernity, in reducing child mortality and expanding opportunity, becomes a cause of below-replacement fertility.

5. Complexity overhead. Each new technology brings new systems to maintain, new risks to regulate and new interdependencies to manage. Institutions accumulate rules, procedures and stakeholders, and the cost of doing anything rises. As Tainter argued and Figure 14 illustrates, net benefit can peak while complexity continues to grow. Citizens experience the result as institutions that demand more and deliver less, which erodes confidence in them (Section 8).

6. Winner-take-most returns. Digital and global markets reward scale. A small number of firms, cities and individuals capture a large share of the gains from new technology, while the incomes of those without scarce skills stagnate. Inequality of income and status rises, competition for elite positions intensifies and the losers mobilize against the institutions that appear to serve the winners, the structural-demographic dynamic described by Turchin (Section 8).

7. Externalities of scale. Cheaper energy, materials and transport have multiplied the throughput of the human economy, and with it the emissions, land conversion and pollution that degrade ecological stability (Section 11). Capability has been coupled to environmental damage for two centuries. Only recently, through cheap renewable energy, has it begun to work in the opposite direction.

Table 16. Seven mechanisms of divergence: evidence and remedies

Mechanism	Dimension affected	Strength of evidence	What weakens it
1. Baumol's cost disease	Affordability; fertility	Strong (A–B)	Housing supply; public provision of care and education; productivity in services, possibly through AI
2. Attention economy	Shared culture; cohesion	Moderate (B)	Platform design and regulation; public media; live and local institutions
3. Mobility and markets	Belonging; association	Moderate (B)	Place-based policy; civic and religious institutions; remote work

Mechanism	Dimension affected	Strength of evidence	What weakens it
4. Opportunity cost of children	Fertility	Strong (B)	Childcare, parental leave, flexible work, cheaper housing, gender-equal parenting
5. Complexity overhead	Institutional capacity	Moderate (B–C)	Simplification; state capacity; sunset rules; digital government
6. Winner-take-most returns	Equality; stability	Moderate (B–C)	Competition policy; taxation; broad access to elite education
7. Externalities of scale	Ecology	Strong (A)	Carbon pricing; clean-energy deployment; circular production

Each mechanism converts a gain in capability into a cost borne by another dimension. None is inevitable: each has known countermeasures, and the countries that apply them show smaller divergence.

13.3 The feedback that matters most

The mechanisms describe how capability can erode cohesion. The most important question for the long horizon is whether the erosion of cohesion can eventually erode capability. There are good reasons to think it can. Scientific and technological progress depends on a large, educated and well-funded research workforce (Section 5), which depends on demography; on stable institutions that fund science, protect property and enforce contracts, which depend on legitimacy; on open societies willing to exchange ideas and people, which depend on trust; and on a stable environment. A society that stops reproducing itself will eventually have fewer researchers. A society that loses confidence in its institutions will find it harder to sustain long-term investment. A society too divided to cooperate will find it harder to respond to shocks.

This feedback operates on the slow clocks of demography and institutions, and it may take decades to show up in measures of capability. It is also uncertain, because capability may increasingly be produced by machines rather than people: if artificial intelligence can substitute for human researchers, the demographic constraint on progress would weaken. But the feedback is the reason the post-peak thesis matters for the long run. Decoupling cannot continue indefinitely. Either cohesion is rebuilt, or its erosion eventually limits capability. Section 15 explores both possibilities.

13.4 Is the divergence inevitable?

The evidence of earlier sections argues strongly that it is not. The Nordic countries combine frontier capability with high and rising trust (Figure 11), falling polarization and comparatively high, though declining, fertility. France sustained fertility near replacement for decades through family policy. Japan and South Korea have kept life expectancy rising even as fertility collapsed. Spain and South Korea build infrastructure at a fraction of American costs. Germany's interpersonal trust rose by more than fifteen points in four decades. The mechanisms of divergence are real, but their strength depends on institutions and policy: on how housing is regulated, how care is funded, how platforms are governed, how inequality is managed and how institutions are designed. The scissors in Figure 21 describe the United States; they are not a law of nature. That is the most hopeful finding in this report, and it shapes the scenarios that follow.

14

COUNTER-ARGUMENTS



14. The Case Against the Thesis

A thesis about decline must be tested against the strongest arguments that it is wrong. This section sets out six objections, weighs each, and records what survives. The objections are serious, and two of them, nostalgia and the progress record, defeat the strong version of the thesis outright. The asynchronous version survives, but in a narrower form than its most enthusiastic advocates would like.

14.1 Objection 1: it is nostalgia

Every generation believes that things were better in its youth. People in at least 60 countries believe that morality has declined over their lifetimes, and believe it about every period since records began, yet surveys that have asked the same questions for decades show no decline in reported kindness, honesty or helpfulness ([Mastroianni & Gilbert 2023](#)). The 'reminiscence bump' ensures that each cohort's most vivid cultural memories come from its teens and twenties ([Rubin, Rahhal & Poon 1998](#)). And, as Figure 10 shows, the filtering of cultural memory alone produces an apparent golden age about thirty years in the past, wherever one stands.

Response. This objection is decisive against claims about cultural quality and moral character, which is why this report grades them D. It is much weaker against the indicators on which the asynchronous thesis rests, which are not memories but contemporaneous measurements: births registered in each year, prices recorded in each month, survey responses collected at the time, audiences metered on the night. Nostalgia cannot explain why South Korea registered fewer than a quarter of a million births in 2023, or why the price of a home has risen faster than income. The memory test in Section 3 exists precisely to separate the claims that survive this objection from those that do not.

14.2 Objection 2: almost everything that matters is improving

The record of the last half-century is one of extraordinary gains in human welfare (Figure 23). The share of the world's population living in extreme poverty, on less than \$3 a day at 2021 prices, fell from about 43 per cent in 1990 to about 10 per cent in the mid-2020s ([World Bank, via Our World in Data](#)). The share of children dying before the age of five fell from 9.4 per cent to 3.7 per cent ([UN IGME](#)). Literacy, schooling, access to electricity, clean water and the internet, and the legal rights of women and minorities have all expanded. Rates of violent death are far lower than in most of human history. On this record, the claim that civilization has peaked looks perverse.

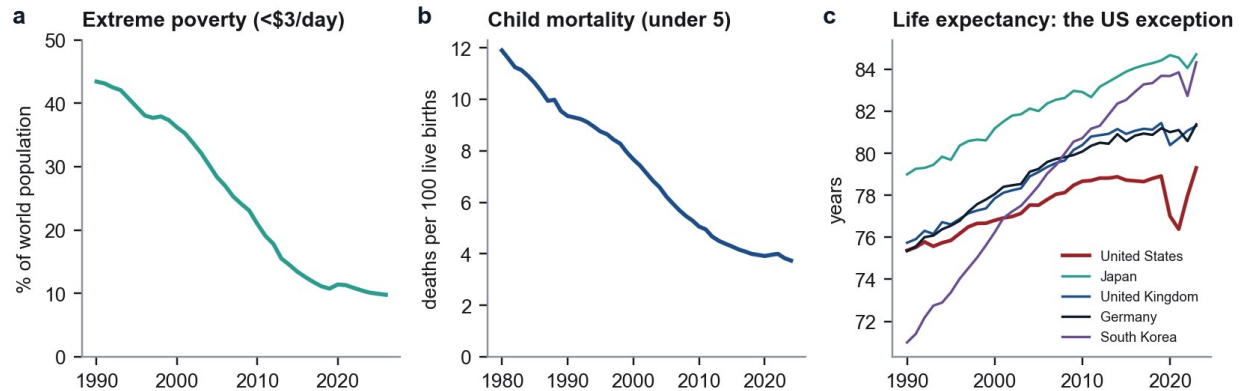


Figure 23. The progress ledger. (a) Share of the world's population living in extreme poverty, below \$3 a day at 2021 purchasing-power parity. (b) Under-five mortality for the world. (c) Life expectancy at birth in five rich countries: the United States is the exception.

Source: World Bank Poverty and Inequality Platform; UN Inter-agency Group for Child Mortality Estimation; UN WPP 2024; all via Our World in Data. Recent poverty values are nowcasts. H Heuristics chart.

Response. The objection is correct, and it defeats the strong version of the thesis. Civilization as a whole has not peaked. But the indicators in Figure 23 are overwhelmingly measures of capability and material welfare: the dimensions that the asynchronous thesis agrees are still rising. The thesis does not claim that poverty is increasing or that medicine is failing. It claims that these gains have coincided with losses in other dimensions, and that the gains do not compensate for or prevent the losses. Even within the progress ledger, the exception of American life expectancy, which stalled in the richest country on earth, shows that capability does not guarantee welfare when cohesion erodes.

14.3 Objection 3: the measures are artefacts

Many of the indicators used in this report are imperfect. Survey questions about trust may mean different things to different generations. The shift of American surveys from telephone to online panels in 2020 introduced discontinuities. The V-Dem classification of a single country can swing the global share living in democracies by many points. Television audiences measured by Nielsen do not count streaming, social clips or illegal downloads. Consumer price indices adjust imperfectly for quality, so that the price of a hospital stay or a university year may overstate the rise in its true cost.

Response. Each of these criticisms is valid for some indicators, and the report has tried to flag them. But the core findings rest on many independent indicators measured in different ways by different organizations, and they point in the same direction. Fertility rests on vital registration, which is about as robust as social data get. Trust in government has fallen across every polling organization and survey mode. Including streaming and online viewing would raise the audience for the *Game of Thrones* finale, but not to anything like the share of the population that watched *M*A*S*H*. Measurement problems introduce uncertainty about the size of the declines, not about their existence.

14.4 Objection 4: these are cycles, not peaks

Social indicators oscillate. American trust in government recovered in the 1980s and after 2001. Democracy has receded and recovered before. Fertility rose sharply after the Second World War, confounding the pessimistic forecasts of the 1930s. Putnam's own work shows that American civic life passed through a low point at the end of the nineteenth century and then rebuilt itself. On this view, the present is a trough in a long cycle, and an upswing may already be beginning.

Response. This is the most serious objection to the asynchronous thesis, and it cannot be fully answered. Some of the declines examined here may indeed reverse: Section 15 treats renewal as a real possibility. But the persistence test asks whether a decline has lasted beyond the historical range of fluctuation, and several have. Trust in American government has been below 30 per cent for almost two decades, a duration without precedent in the series. Fertility in East Asia and southern Europe has been below 1.5 for a generation, and no country has returned from such levels to replacement. And for the demographic and ecological dimensions, momentum makes any cycle extremely long: even an immediate rise in fertility would not stop population decline for decades. The cycle objection is a reason for humility about the institutional and cultural dimensions, not about the demographic or ecological ones.

14.5 Objection 5: change is not decline

A quieter objection holds that much of what this report calls decline is simply change, and that the values implicit in calling it decline are those of a particular generation and social order. Lower fertility reflects the freedom of women to choose their lives. The fragmentation of mass culture reflects the end of a narrow, gatekept culture dominated by a few networks and labels, and the opening of cultural production to millions of creators from every background. The decline of religious membership reflects freedom of conscience. The decline of deference to institutions reflects a more educated and less credulous public.

Response. This objection is correct about values, and the report has tried to respect it by separating the descriptive question, has a dimension peaked, from the evaluative one, does it matter. Many of the changes documented here are, from some perspectives, gains. But two points remain. First, some of the changes are not chosen: the gap between the number of children people want and the number they have, the rise in loneliness that people report as painful, and the fall in life expectancy are not expressions of preference. Second, whether or not a change is desirable, it has consequences. A society with very low fertility will age and shrink, whatever the reasons for its choices; a society without shared reference points will find collective action harder, however rich its niches. The post-peak thesis is about those consequences.

14.6 Objection 6: capability will solve it

A final objection is technological. If artificial intelligence and robotics raise productivity in care, education and construction, they will cure Baumol's cost disease. If AI can do research, the demographic constraint on progress will vanish. If machines can care for the old, ageing will be affordable. Capability, on this view, is not the cause of the problems the report describes but their eventual solution.

Response. This may prove to be right, and it is the basis of the renewal scenario in Section 15. But it is a prediction, not an observation, and the record of the last half-century does not support confidence that capability by itself repairs cohesion. Computing, the internet and smartphones were all expected to strengthen communities, democracy and mutual understanding; their effects on those dimensions have been at best mixed. Technology can lower the cost of care, but it cannot by itself provide belonging, trust or meaning. Whether it helps or harms those dimensions depends on the institutions within which it is deployed.

14.7 What survives

Figure 24 brings the tests together for thirteen sub-dimensions, scoring each on the strength of evidence for decline, its persistence, its breadth across societies and the difficulty of reversing it. Capability and

global health show no peak. Cultural quality is unproven. Interpersonal trust is mixed across countries. Productivity and research yield have plateaued. But fertility and family formation, institutional confidence in the West, shared popular culture, ecological stability and the West's global share all show peaks that pass every test, and democratic governance and everyday affordability show declines that pass most of them.

	Evidence of decline	Persistence	Breadth across societies	Difficulty of reversal	Verdict (grade)
Frontier technological capability	0	0	0	0	No peak (A)
Productivity and research yield	3	3	3	2	Plateau (B)
Health and longevity (global)	0	0	0	0	No peak (A)
Shared popular culture	3	3	2	3	Peak passed (B)
Cultural quality and creativity	1	1	1	1	Unproven (D)
Interpersonal trust and belonging	3	3	2	2	Peak passed (B)
Institutional confidence (West)	4	4	2	2	Peak passed (A–B)
Democratic governance (world)	3	2	3	2	Recession (B)
Fertility and family formation	4	4	4	3	Peak passed (A)
Population size (world)	1	1	2	3	Peak ahead (A)
Everyday affordability	3	3	3	2	Deteriorating (B)
Ecological stability	4	4	4	4	Peak passed (A)
Western global share	4	4	2	3	Peak passed (A)

Scores: 0 = no evidence, 4 = strong evidence. H Heuristics assessment of the evidence reviewed in Sections 4–12.

Figure 24. What survives the tests. H Heuristics assessment of the evidence for a peak in thirteen sub-dimensions, scored 0 (no evidence) to 4 (strong evidence) on four criteria, with the overall verdict and evidence grade.

Source: H Heuristics assessment of the evidence reviewed in Sections 4–12.

Table 17. Six objections and their effect on the thesis

Objection	Strongest against	Effect on the asynchronous thesis
1. It is nostalgia	Claims about cultural quality and moral character	Removes these claims (Grade D); leaves contemporaneous indicators intact
2. Almost everything is improving	The strong version: civilization as a whole has peaked	Confirms that capability and material welfare have not peaked; does not address cohesion, fertility, ecology
3. The measures are artefacts	Single indicators, recent classifications	Introduces uncertainty about size, not direction
4. These are cycles	Institutional trust, democracy, culture	Real uncertainty; weak against demography and ecology, where momentum dominates
5. Change is not decline	Evaluative claims	Correct about values; consequences of change remain
6. Capability will solve it	Affordability, ageing, research yield	A plausible prediction, not yet an observation; basis for the renewal scenario

The strong version of the post-peak thesis does not survive objection 2. The asynchronous version survives all six in narrowed form.

The verdict of this section is therefore precise. The claim that humanity has passed its peak is false. The claim that the civilizational order of the twentieth-century West has passed its peak in several important dimensions is true. And the claim that progress in capability is concealing regression in cohesion, reproduction, affordability and ecology is, on the evidence reviewed, well supported.

15

SCENARIOS

15. Pathways to 2100 and Beyond

15.1 Two variables, five futures

If the dimensions of civilization can move independently, the future cannot be described by a single trajectory of progress or decline. At a minimum it requires two variables: the pace at which capability grows, and the direction in which cohesion moves. Figure 25 uses those two variables to define four pathways, with a fifth as a tail risk. The pathways are not predictions. They are coherent stories, each consistent with the evidence, that help to identify what would have to happen for each to unfold and which early indicators would tell them apart.

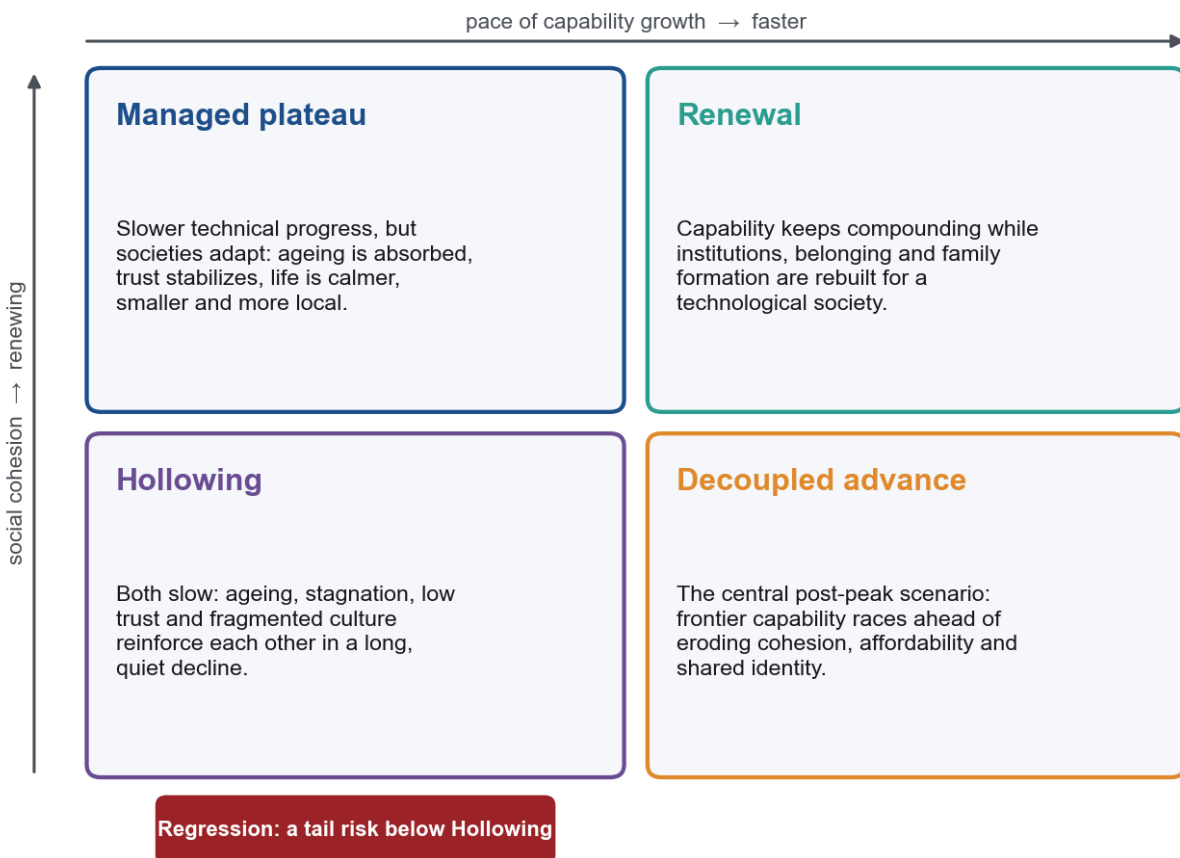


Figure 25. Five pathways for a post-peak civilization, defined by the pace of capability growth and the direction of social cohesion. Regression is a tail risk in which eroding cohesion eventually reverses capability itself.

Source: H Heuristics.

1. **Renewal.** Capability continues to compound, and societies rebuild the social foundations of a technological civilization: housing becomes affordable, care and childcare are provided at scale, institutions are simplified and regain competence, new forms of association replace those that have faded, and fertility recovers toward replacement. AI raises productivity in services, easing Baumol's cost disease. This is the pathway of the Nordic countries generalized and accelerated.
2. **Managed plateau.** Technical progress slows, perhaps because research productivity continues to fall and the research workforce shrinks, but societies adapt. Ageing is absorbed through later retirement and migration, trust stabilizes, and life becomes calmer, more local and less growth-oriented. This is a dignified version of what some commentators fear as stagnation, and it resembles aspects of contemporary Japan.
3. **Decoupled advance.** Frontier capability races ahead, driven by AI and concentrated in a small number of firms and countries, while cohesion, affordability, fertility and shared identity continue to erode. Societies become extraordinarily capable and increasingly unequal, isolated and distrustful. This is the extrapolation of current trends and the central post-peak scenario.
4. **Hollowing.** Both capability growth and cohesion decline together: ageing, stagnation, low trust and fragmented culture reinforce one another in a long, quiet decline, without collapse, in which institutions persist but achieve less and less.
5. **Regression.** A tail risk in which the erosion of cohesion crosses a threshold beyond which it becomes self-reinforcing, and eventually reverses capability itself: institutions fail to maintain infrastructure, research and education decline, and conflict or ecological shocks accelerate the unravelling. This is the pathway explored in earlier H Heuristics work on the polycrisis.

15.2 A model of capability and cohesion

Figure 26 gives the pathways quantitative shape with a deliberately simple two-variable model. Capability grows at a rate that depends on cohesion, because a cohesive society sustains the institutions, workforce and investment that progress requires; and it erodes if cohesion falls below a critical level, because maintenance fails. Cohesion relaxes toward a long-run level set by institutions, is disrupted in proportion to the pace of capability growth (the mechanisms of Section 13), is rebuilt by deliberate investment, and below a critical level erodes further on its own. The five pathways differ only in the values of a handful of parameters: how fast capability can grow, how sensitive it is to cohesion, how strongly growth disrupts cohesion, how much is invested in rebuilding it, and where the critical threshold lies.

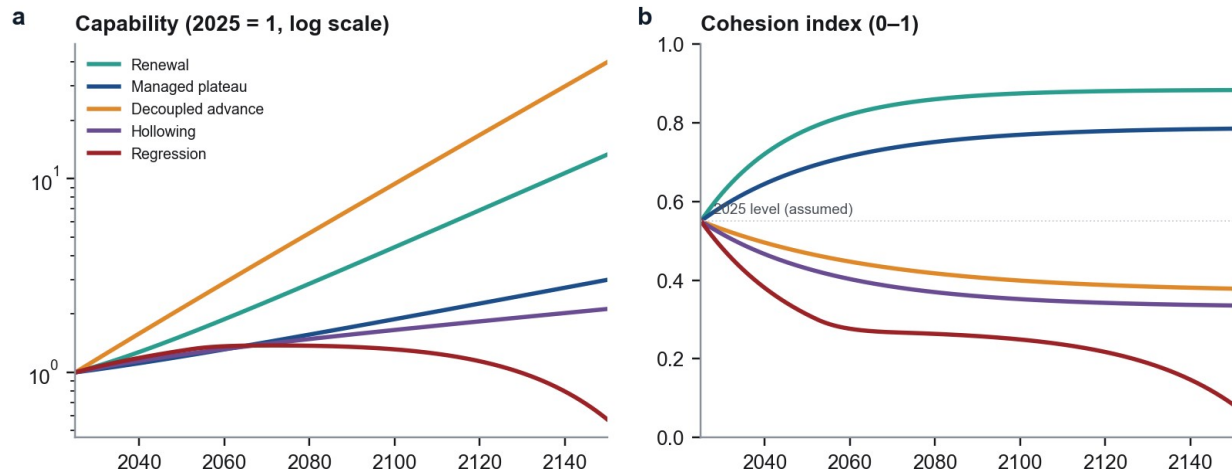


Figure 26. Five pathways in a toy model. (a) Capability relative to 2025, logarithmic scale. (b) A cohesion index on a 0–1 scale, starting from an assumed 2025 level of 0.55.

Source: H Heuristics calculation. $d \ln K/dt = g_0 S' - \delta \cdot \max(0, S_c - S)$; $dS/dt = \rho(S^* - S) - \alpha \cdot \max(d \ln K/dt, 0) + I$, with additional self-reinforcing erosion below S_c . Parameter values for each pathway are given in the text. Illustrative only.

The model produces the five pathways. Under **renewal**, cohesion recovers to about 0.87 by 2100 and capability grows about 4.4-fold. Under **decoupled advance**, in which capability growth is fast and insensitive to cohesion, capability grows about 9.4-fold by 2100, more than under any other pathway, while cohesion falls to about 0.4. Under **managed plateau**, capability roughly doubles and cohesion stabilizes near 0.77. Under **hollowing**, capability grows only 1.7-fold and cohesion sinks to about 0.35. And under **regression**, cohesion crosses its critical threshold in the second half of the century, capability peaks and then declines, and by 2150 capability is below its 2025 level (0.6 times) and cohesion has fallen to 0.08.

Three lessons follow from the model, and they do not depend on its arbitrary parameters. The first is that decoupled advance produces the highest capability in the medium term, which is why it is attractive to those who measure progress by capability alone, and why it is the default trajectory of a world that does so. The second is that the difference between renewal and decoupled advance is not the pace of technology but the investment in cohesion: renewal combines fast capability growth with sustained investment in rebuilding the social foundations. The third is that regression is possible only if cohesion falls below a threshold beyond which erosion becomes self-reinforcing, which is why early warning matters. The value of distinguishing the pathways is that they diverge slowly at first and then rapidly.

Table 18. The five pathways compared

Pathway	Capability, 2100	Cohesion	Demography	What drives it
Renewal	High and rising	Rebuilt	Fertility recovers toward 1.8–2.0	Investment in housing, care, institutions; AI in services
Managed plateau	Moderate	Stable	Low but stable; migration	Adaptation to slow growth and ageing
Decoupled advance	Highest	Low	Very low fertility; rapid ageing	Unmanaged technology; concentration of gains
Hollowing	Low	Low	Shrinking, ageing	Stagnation and distrust reinforcing each other

Pathway	Capability, 2100	Cohesion	Demography	What drives it
Regression	Falling	Collapsing	Sharp decline	Threshold crossed; maintenance failure; shocks

Model outcomes are illustrative. On current trends in most rich democracies, decoupled advance is the most likely pathway; renewal is the most desirable; regression is a tail risk.

15.3 Indicators to watch

Because the pathways diverge slowly, the most useful thing a framework of this kind can provide is a set of early indicators that would show which one is unfolding. Table 19 proposes ten. Each is already measured, most of them annually, and together they would allow a society to see, within a decade, whether it is on the road to renewal or to decoupled advance.

Table 19. Ten indicators that would distinguish the pathways

Indicator	Renewal signal	Decoupling or hollowing signal
Total fertility rate	Sustained rise toward 1.8	Further decline below 1.3 in more countries
Gap between desired and actual fertility	Narrowing	Widening
House price to income ratio	Falling toward 3–4	Rising further
Prices of childcare, health care and tuition relative to all items	Stable or falling	Continued rise
Trust in national government	Sustained recovery above 30–40%	New lows
Interpersonal trust (World Values Survey)	Rising, as in the Nordic countries	Falling across rich democracies
Time spent with friends; reported loneliness	Recovery	Further decline
Productivity growth in services	Acceleration with AI	Gains confined to technology sectors
Cost and speed of building infrastructure	Falling costs, faster delivery	Rising costs, longer delays
Share of world population in democracies	Recovery	Further decline

Each indicator is measured by national statistical agencies, international bodies or long-running surveys. H Heuristics intends to track them in future editions of this report.

15.4 Beyond 2100

Over longer horizons, only the slowest dimensions remain predictable. The demographic momentum of the twenty-first century will shape the twenty-second: if global fertility settles near the UN's assumption of about 1.8, world population will decline slowly after its peak; if it settles near 1.5, the decline will be rapid, with the population roughly halving every century or so. The carbon dioxide emitted in this century will still be warming the planet in the next, and sea level will still be rising. Beyond those physical and demographic certainties, the long-horizon question is whether a civilization with a stable or shrinking population, an old age structure and very high capability can sustain the institutions and cohesion on which its capability rests. No such civilization has existed. Whether it can is perhaps the deepest question

the post-peak thesis raises, and it will be answered not by technology alone but by the choices societies make about how to live with it.

16

CONCLUSION

16. Conclusion

16.1 The answer to the question

This report began by asking whether humanity has passed the peak of a particular civilizational order. Its answer has three parts. **First, humanity as a whole has not peaked.** Capability, the ability to compute, cure, produce and know, continues to rise exponentially, and the material welfare of humanity, measured by longevity, child survival and freedom from extreme poverty, has never been higher. The strong version of the post-peak thesis is not supported (Grade D).

Second, the civilizational order that the most advanced societies built in the twentieth century has passed its peak in several important dimensions. Fertility peaked in the 1960s and population is now falling across much of the rich world. Confidence in institutions peaked in the 1960s and 1970s and stands near record lows in the United States. The democratic high-water mark was reached around the turn of the millennium. The mass shared culture of the broadcast era peaked in the early 1980s. The West's share of world output peaked in the 1980s. Ecological stability peaked before measurement began. Each of these peaks passes the five tests set out in Section 3 (Grades A and B).

Third, the dimensions of civilization have come apart, and progress in capability is concealing regression elsewhere. The peaks are asynchronous, spread over more than half a century, and the capability indicators have not peaked at all. In the United States, a composite of capability has risen steadily while a composite of cohesion and social reproduction has fallen. Seven mechanisms, from Baumol's cost disease to the attention economy and the overhead of complexity, link the rise of the first to the fall of the second. This is the asynchronous post-peak thesis, and on the evidence reviewed it is well supported (Grade B).

Table 20. Summary of verdicts by dimension

Dimension	Verdict	Peak	Grade	Section
Biological evolution	No peak	Not applicable	A	4
Health and longevity (global)	No peak	Still rising	A	4, 14
Frontier capability	No peak	Still rising	A	5
Productivity and research yield	Plateau	1960s (US productivity growth)	B	5
Shared popular culture	Peak passed	Early 1980s	B	6
Cultural quality	Unproven	—	D	6
Social cohesion (US); religious belonging	Peak passed	1960s–1990s	B	7

Dimension	Verdict	Peak	Grade	Section
Interpersonal trust (rich world)	Divergent	Rising in some, falling in others	C	7
Institutional confidence (US)	Peak passed	1964	A	8
Democratic governance (world)	Recession	2001	B	8
Fertility and family formation	Peak passed	1963 (world)	A	9
World population	Peak ahead	2080s (projected)	A	9
Everyday affordability	Deteriorating	1980s–1990s	B	10
Ecological stability	Peak passed	Before 1970	A	11
Western global share	Peak passed	1980s (output); before 1950 (population)	A	12

Grades describe the strength of evidence for the verdict, using the scale set out in About This Report.

16.2 What the thesis changes

If the asynchronous thesis is right, three things follow for how societies think about their future. The first is that **capability is not a proxy for progress**. A society that judges its health by its technology, its GDP or its stock market will systematically overlook the slow dimensions on which its long-run survival depends, because the fast clock of capability drowns out the slow clocks of demography, institutions and ecology. Measures of national progress should include indicators of cohesion, reproduction and affordability alongside indicators of output.

The second is that **the social foundations of a technological civilization will not maintain themselves**. Markets and technologies do not automatically produce affordable homes, abundant care, trusted institutions, shared culture or stable ecosystems; in several cases they work against them. These are, in the economist's language, public goods and externalities, and they require deliberate collective investment. The Nordic evidence shows that the investment can work.

The third is that **the window for renewal is open but not indefinitely**. The demographic and ecological dimensions have momentum measured in decades and centuries, and the longer their decline continues, the harder it will be to reverse. The institutional and cultural dimensions can change faster, and the record shows that they have recovered before. Renewal is possible, but it requires recognizing what has been lost before it becomes impossible to rebuild.

16.3 A research agenda

- **Peak dating at scale.** Extend the peak-dating analysis of Section 3 to hundreds of indicators and dozens of countries, to test whether the sequence of peaks found here generalizes.
- **Memory-corrected measures of cultural achievement.** Compare cultural works from different periods judged at the same distance in time, to test the cultural quality hypothesis while correcting for canon lag.
- **Cohesion accounting.** Develop national indicators of cohesion, reproduction and affordability that can be reported alongside GDP.
- **The Nordic exception.** Explain why trust has risen and polarization fallen in the Nordic countries while both moved the other way in the United States, and what that implies for policy.

- **AI and Baumol's cost disease.** Measure whether artificial intelligence raises productivity in care, education, health and construction, and whether that eases the affordability paradox.
- **The desired–actual fertility gap.** Identify which constraints, housing, childcare, partnership or work, most explain the gap between the number of children people want and the number they have.
- **Thresholds of cohesion.** Test whether there are levels of trust, institutional confidence or polarization below which decline becomes self-reinforcing, as the regression pathway assumes.

16.4 Closing

Spengler wrote that the West would end in a long winter in which technique replaced culture. A century later, the West has not ended, and its technique has exceeded anything Spengler imagined. But something of his intuition survives the failure of his prophecy. The most advanced societies on earth are more capable than ever, and in several of the dimensions that earlier generations regarded as the substance of a good society, belonging, trust, family, a shared story and a stable natural world, they have passed their high points. The future may be far more advanced in capability without reproducing the social order that preceded it. Whether it reproduces something better, or something worse, is not yet decided.

Conclusion. Technological progress does not guarantee civilizational continuity. Humanity has not passed its peak, but several of the things its most advanced societies valued most have, and the decisive question of the century is whether capability can be put to work rebuilding them.

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