

Joel Mokyr: Knowledge, Culture, and the Origins of Modern Growth

Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2025

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Subject: The Economics behind Growth

1. Introduction — From Stagnation to Prosperity

When the Royal Swedish Academy of Sciences awarded the 2025 Prize in Economic Sciences to Joel Mokyr, Philippe Aghion, and Peter Howitt “for having explained innovation-driven economic growth,” it acknowledged one of the most fundamental questions in economics: **why did sustained growth begin, and why has it persisted?**

For thousands of years, living standards fluctuated within narrow bounds. Agricultural surpluses, trade booms, or local innovations brought temporary gains, yet growth repeatedly returned to zero. Then, around the late eighteenth century, output per person began to rise at a pace never seen before. Joel Mokyr, professor of economics and history at Northwestern University, has devoted his career to uncovering *why* this transformation occurred and *what institutional and cultural preconditions* allowed it to endure.

His research re-centres the history of growth on the interaction between **knowledge, beliefs, and incentives**. Rather than attributing the Industrial Revolution solely to capital accumulation or colonial extraction, Mokyr emphasizes an evolving *culture of progress*—a conviction that systematic inquiry could improve human welfare. This intellectual shift, he argues, converted episodic invention into self-sustaining innovation.

2. The Problem of Stagnation

Until the mid-eighteenth century, global output per capita showed little permanent increase. Even brilliant inventions—from the waterwheel to the printing press—produced localized efficiency gains that dissipated through population growth or resource limits. In Mokyr’s interpretation, pre-modern societies lacked a **mechanism for cumulative improvement**.

Two constraints dominated.

1. **Technological bottlenecks:** Knowledge was largely empirical. Artisans knew

how to do things, but not *why* they worked. Without theoretical understanding, progress depended on serendipity and craft secrecy.

2. **Institutional inertia:** Guilds, monopolies, and political hierarchies discouraged novelty. Fear of disruption outweighed enthusiasm for change.

These conditions fostered what Mokyr calls “the tyranny of the accepted.” Discovery occurred, but diffusion stalled. Only when the intellectual environment itself changed could innovation compound upon innovation.

3. The Enlightenment and the Industrial Revolution

Mokyr’s central insight is that the Industrial Revolution was inseparable from an **Industrial Enlightenment**—a moral and cognitive transformation in how societies conceived knowledge. Between roughly 1650 and 1850, Western Europe developed an expanding “Republic of Letters,” a transnational network of scholars, engineers, and artisans exchanging ideas across borders.

This movement replaced reverence for inherited wisdom with confidence in **experimentation, verification, and improvement**. Scientific reasoning—Newtonian physics, chemistry, natural philosophy—offered causal explanations for mechanical and chemical processes. Artisans and inventors began to apply these principles to production, from steam power to metallurgy.

Crucially, Mokyr shows that Enlightenment thinkers did not view progress as automatic. It required deliberate *institutional support*—scientific societies, patent laws, journals, and exhibitions—that linked theory to practice. Britain’s distinctive combination of intellectual pluralism and commercial openness enabled entrepreneurs to test and finance new ideas.

Thus, the Industrial Revolution was not merely a cluster of mechanical inventions; it was the social manifestation of a new epistemic regime—a **belief that human reason could continuously improve material life**.

4. Culture and the Market for Ideas

In *A Culture of Growth* (2016), Mokyr extends this thesis into a framework of **cultural evolution**. Ideas, like technologies, compete within a “market for beliefs.” Societies that tolerate dissent, debate, and experimentation generate more *variety* of ideas; selection then rewards those that prove useful.

Europe's unique configuration after the Reformation—many small, semi-autonomous states linked by communication but divided politically—created such a competitive marketplace. When one regime censored innovators, others offered refuge. This *fragmented pluralism* encouraged bold hypotheses and reduced the risks of intellectual persecution.

Mokyr contrasts this with centralized empires such as Ming China or the Ottoman Empire, where intellectual orthodoxy suppressed deviation. The difference was not innate talent but **institutionalized openness**. By granting legitimacy to curiosity and challenge, European culture transformed invention from marginal curiosity into a respectable vocation.

This process mirrors, in cultural terms, the economic principle later formalized by Aghion and Howitt: *creative destruction*. New ideas replace old paradigms, driving long-run improvement but also conflict. Mokyr's contribution lies in revealing the **moral infrastructure** that makes such destruction socially acceptable.

5. Institutions and Incentives

While culture provided the spark, institutions determined whether it could ignite sustained growth. Mokyr bridges the traditional debate between **institutions** (à la Douglass North) and **culture** by showing their co-evolution.

Property rights, patent systems, and legal protections gave inventors material incentives. Yet, without cultural validation of curiosity and experimentation, these mechanisms would remain inert. Conversely, curiosity alone could not flourish under despotic control.

In eighteenth-century Britain and the Low Countries, this synergy was visible. Parliament's relatively stable governance reduced expropriation risk; religious pluralism shielded non-conformists who pioneered industrial methods; scientific societies offered recognition independent of aristocratic patronage. The result was a self-reinforcing system in which **knowledge production became economically rewarded and economic success validated further knowledge production**.

6. Knowledge as an Economic Resource

Mokyr's analytical distinction between **useful knowledge** (*techne*) and **propositional knowledge** (*episteme*) provides a bridge between history and modern growth theory. Useful knowledge refers to techniques and recipes; propositional knowledge to scientific principles. Sustained

innovation arises when the two interact—when empirical practice feeds theory and theory, in turn, guides new practice.

Before 1700, this feedback loop was weak: craftsmen lacked theoretical guidance, and scholars disdained manual labor. The Industrial Enlightenment merged these worlds. Artisans read scientific manuals; scientists observed workshops. Knowledge began to accumulate **exponentially rather than linearly**, setting the stage for centuries of compounding progress.

By framing knowledge as a *public good*—non-rival but cumulative—Mokyr also anticipates modern debates on intellectual property and diffusion. His work implies that growth depends not only on invention but also on **society's capacity to share, store, and build upon information**.

7. Legacy and Relevance Today

Mokyr's historical analysis carries contemporary resonance. The same mechanisms that enabled the Industrial Revolution underpin today's digital and scientific revolutions.

1. **Openness to new ideas:** Societies that value free inquiry and evidence remain the most innovative. Restrictions on academic freedom or data exchange risk replicating pre-industrial stagnation.
2. **Trust in science:** The Enlightenment's faith in rational investigation is under pressure from misinformation and polarization. Mokyr's narrative warns that when belief in progress erodes, so does progress itself.
3. **Cultural adaptability:** As artificial intelligence, biotechnology, and climate technologies reshape economies, maintaining a moral climate tolerant of disruption is vital. Creative destruction is as much cultural as economic.
4. **Global diffusion:** Mokyr's emphasis on networks of knowledge highlights the importance of open global collaboration. Innovation thrives where information crosses boundaries.

His research thus reframes the challenge of modern growth policy: beyond fiscal or industrial instruments, nations must nurture the *intellectual infrastructure* that supports curiosity, dissent, and optimism.

8. Conclusion

Joel Mokyr's scholarship transforms the study of economic growth from an abstract accumulation model into a deeply human narrative about **beliefs, values, and institutions**. He

demonstrates that the modern world's prosperity rests not simply on machines or markets but on a *moral and cognitive climate* that welcomes novelty and tolerates failure.

By revealing how Enlightenment ideals produced self-sustaining innovation, Mokyr explains why growth, once rare and reversible, became the normal condition of advanced societies. His work complements the theoretical achievements of Philippe Aghion and Peter Howitt, who modeled the same process of creative destruction in mathematical form. Together, they remind us that progress is neither automatic nor guaranteed—it depends on preserving the cultural and institutional mechanisms that keep the light of curiosity burning.

APPENDIX Bio - Joel Mokyr

Joel Mokyr is the Robert H. Strotz Professor of Arts and Sciences in Economics and History at **Northwestern University**. Born in 1946 in the Netherlands, Mokyr is a leading economic historian whose research focuses on the Industrial Revolution, technological change, and the cultural and institutional foundations of economic growth. He is the author of numerous influential books, including *The Lever of Riches* (1990) and *A Culture of Growth* (2016), which examine how knowledge, culture, and innovation transformed living standards in Europe and beyond. Mokyr's work emphasizes the interaction between scientific understanding and practical invention, highlighting the social and intellectual conditions that enabled sustained economic progress. In 2025, he was awarded the **Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel** for identifying the prerequisites for long-term growth through technological advancement.