

3. Nobel Prize in Economics 2025

The 2025 Economics Nobel prize was awarded to Joel Mokyr, Philippe Aghion, and Peter Howitt for their ground breaking work on innovation and economic growth.

About the Nobel Economics Prize

Official Name – The award is formally known as the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel.

Establishment – It was established in 1968 by the Central Bank of Sweden (Sveriges Riksbank) to commemorate Alfred Nobel, the 19th-century Swedish chemist, inventor of dynamite, and founder of the five original Nobel Prizes (Physics, Chemistry, Medicine, Literature, and Peace).

First Awarded – The first laureates in 1969 were Ragnar Frisch (Norway) and Jan Tinbergen (Netherlands) for developing econometric models that laid the foundation of modern empirical economics.

Historical Roots of Modern Economic Growth

1. The Core Puzzle – The laureates explored a fundamental historical question – Why did sustained economic growth – i.e., continuous improvement in living standards – emerge only in the last two centuries, even though humans had technological knowledge for millennia? – Ancient civilizations achieved impressive feats – architecture, metallurgy, agriculture – but growth was stagnant and episodic, not sustained.

2. Prescriptive vs. Propositional Knowledge

Prescriptive Knowledge (Pre-Scientific Era) – Before the Industrial Revolution, most technological know-how was empirical and craft-based. Artisans and inventors knew how to make things work but not why they worked – knowledge was passed through tradition, not theory. Example – Blacksmiths or potters perfected their crafts by trial and error, not by understanding scientific principles.

Propositional Knowledge (Post-Scientific Revolution) – The Scientific Revolution (16th–17th centuries) transformed human understanding. Thinkers like Galileo, Newton, and Bacon linked empirical observation with theoretical reasoning. This gave rise to propositional knowledge – a systematic, logical understanding of natural laws.

Fusion into Useful Knowledge – When scientific reasoning (theory) merged with practical application (technology), it produced “useful knowledge” – the foundation of modern innovation. This shift allowed inventions to be replicated, scaled, and improved systematically – setting the stage for the Industrial Revolution.

3. The Industrial Revolution and Modern Growth

The Industrial Revolution (mid-18th to 19th century) represented the first sustained fusion of science and technology. It initiated a self-reinforcing cycle of innovation – Scientific advances → new inventions → economic growth → reinvestment in research. This transformation shifted economies from Malthusian stagnation (where population growth offset income gains) to modern economic growth, where productivity rises faster than population.

Economics of Creative Destruction (1992 Model)

1. Concept and Origin – The laureates built on Joseph Schumpeter’s idea of “creative destruction”, where innovation constantly replaces old technologies. Their 1992 general equilibrium model provided a mathematical foundation for how creative destruction drives long-term macroeconomic growth.

2. Mechanism of the Model

Firm-Level Innovation Cycle – Firms invest in Research and Development (R&D) to create better products or production processes. Successful innovators gain temporary monopoly profits, rewarding their risk-taking. Over time, new innovators emerge with superior technologies, displacing older firms. This continuous cycle of creation and replacement sustains aggregate growth.

Macroeconomic Implications – Even though individual firms rise and fall, the overall economy grows steadily as each wave of innovation raises productivity. The model integrates microeconomic decisions (firm-level R&D) with macroeconomic outcomes (GDP growth).

3. Role of R&D and Public Policy

Positive Externalities – Innovation benefits not just the inventor but society at large – through knowledge spillovers, better products, and higher efficiency.

Market Failure Justification – Since private firms may underinvest in R&D (due to non-excludable spillovers), public investment in research, education, and innovation ecosystems is justified.

Policy Implication – Governments should encourage competition, intellectual property protection, and public-private collaboration to sustain innovation-led growth.

4. Significance of the Model

Bridging Micro and Macro – It links firm-level innovation behaviour to aggregate growth outcomes, a major theoretical advancement.

Explaining Modern Growth – Provides a framework for why some economies sustain long-term growth – they enable continuous creative destruction.

Policy Insights – Over-regulated or monopolised markets slow down innovation, while open, competitive economies accelerate technological diffusion.

Significance for India and Developing Economies

1. Invest in Science and Human Capital – India must expand R&D funding and strengthen innovation ecosystems, particularly around universities, startups, and research labs. Improved STEM education and research-industry linkages can create the base for useful knowledge, similar to post-Industrial Revolution economies.

2. Balance Adoption and Innovation – Developing economies like India can grow initially through technology adoption (imports, FDI, or licensing). But long-term sustainable growth requires indigenous innovation capacity – through domestic startups, local patents, and regulatory reforms supporting ease of innovation.

3. Strengthen Market Competition – To preserve the creative destruction cycle, India must prevent excessive market concentration, especially in sectors like telecom, tech platforms, and energy. Competition policy should ensure that incumbents do not stifle new entrants through anti-competitive practices.

4. Resilient Labor Market Policies – As innovation disrupts traditional jobs, India must adopt “flexicurity” policies – providing worker protection through reskilling, training, and social insurance, rather than rigid job security. This helps maintain employment stability while encouraging industrial flexibility.

5. Promote Inclusive and Sustainable Innovation – Align innovation policy with national development goals, such as –

1. Renewable energy technologies (SDG 7, SDG 13)
2. Digital inclusion and AI adoption (Digital India Mission)
3. Sustainable manufacturing (Atmanirbhar Bharat, Make in India)

Innovation must serve socially inclusive growth, not just profit-driven expansion.

Relevance of the Prize to India's Economic Trajectory

The creative destruction model is highly relevant to India's push for a knowledge-driven economy under initiatives like – Startup India, Atal Innovation Mission, PLI schemes, and Digital India. Encouraging entrepreneurial risk-taking and scientific R&D will enable India to transition from a factor-driven economy to an innovation-driven economy. Policymakers can leverage this theory to craft innovation-led industrial strategies that ensure both economic dynamism and social inclusivity.

Conclusion

The laureates' work unites historical insight, theoretical innovation, and policy relevance, explaining how science, technology, and institutions interact to sustain modern economic growth. Their framework of creative destruction offers critical lessons for India and other developing economies – highlighting that growth is not just about capital accumulation, but about continuous innovation, competitive renewal, and human capital development. As India aims for Viksit Bharat @2047, this vision of innovation-led, inclusive, and knowledge-driven growth remains deeply relevant.

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