

Retroeconomics and the Difficulties in Developing an Innovation-Oriented Economy

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A *retroeconomy* refers to an economic environment where firms operate using comparatively outdated technologies, yet continue to meet existing consumer demand (Papava, 2025). The term “retro” is derived from Latin, meaning “backwards.” In this context, we define *retroeconomics* as a theoretical framework that seeks to explain the structural technological lag within certain national economies (Papava, 2017).

Although the structural drivers of a retroeconomy are diverse in nature, they collectively contribute to the formation of a retroeconomic structure. The primary contributing factors include:

1. *Restrictive intellectual property rights*, which limit access to advanced technologies (Golichenko, 2012);
2. *Economic monopolisation*, hindering market competition and innovation (Stiglitz, 2016);
3. *Strategic behaviour of dominant global firms*, who may restrict technology diffusion (Porter, 1990);
4. *Low levels of human capital development*, particularly in science and technology (Golichenko, 2012); and
5. *The prevalence of ‘zombie’ enterprises*, referring to insolvent firms and associated banks that continue operations through state-guaranteed loans, often following financial crises (Hoshi, 2006).

Together, these factors create systemic barriers to the development of a modern, innovation-led economy.

It is important to distinguish between the geographical impacts of the above factors. The first four are more prevalent in low-income and developing economies, while the fifth—zombie enterprises—is increasingly relevant across both developing and developed countries.

According to Professor Jeffrey D. Sachs, sustainable economic development depends significantly on transforming advanced technologies into *public goods* (Sachs, 2017). According to Professor Joseph E. Stiglitz, this transition, however, necessitates substantial reforms in legal frameworks surrounding intellectual property (Baker, 2023). The process is frequently impeded by the first three aforementioned factors, which reinforce the retroeconomic status quo.

While imitation-based industrial strategies may provide short-term economic gains, especially in low-technology economies, they often result in persistent productivity gaps relative to developed nations. The root of these disparities lies in how knowledge is acquired, adapted, and applied within different national contexts.

In developing countries, the replication of ageing foreign technologies often becomes a default path due to limited domestic capabilities. However, this reinforces a cycle of technological dependency and hinders the development of indigenous innovation capacities.

This phenomenon is commonly referred to as the *technology trap*—a situation where firms persist in using obsolete, low-efficiency technologies despite having access to superior alternatives (Frey, 2020). Such traps are often exacerbated by an institutional environment dominated by short-termism, driven by political instability, weak rule of law, and macroeconomic uncertainty.

There exists a bidirectional relationship between the technology trap and a retroeconomy. Firms entrenched in such traps embody the retroeconomic model, while the continued presence of such firms reinforces structural technological stagnation.

To facilitate a transition towards an innovation-based economy, a multifaceted and proactive governmental policy approach is required. Recommended measures include:

1. *Strengthening the national education system*, particularly in STEM fields;
2. *Providing robust support for scientific research and development*;
3. *Establishing institutional mechanisms for commercial knowledge transfer*;
4. *Introducing financial instruments*, such as interest subsidies and tax incentives for innovation-driven firms;
5. *Liquidation of non-viable enterprises* through a transparent and enforceable legal framework;
6. *Encouraging negotiated solutions* between creditors and firm owners in cases of insolvency, with government intervention restricted to unresolved disputes under bankruptcy law; and
7. *Creating a coherent legal environment* that ensures the effective application of bankruptcy regulations, free from contradictory or obstructive legislative provisions.

In conclusion, overcoming retroeconomic inertia requires coordinated government intervention, institutional reform, and commitment to a policy of long-term innovation. Without such measures,

countries risk remaining locked in cycles of technological underdevelopment and limited global competitiveness.

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