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# Markets as machines vs markets as forests



Mohd Fahad Ifaz

All blogs

**Development perspectives rely heavily on economic theories. But traditional theory assumes economics as linear systems filled with rational actors who seek to optimize their situation. The system's default state is equilibrium. However in reality economic systems are as complex systems like that of a forest. And it is important for development practitioners to realise that economic systems are not only similar to ecosystems; they are the ecosystems.**

The decisions that development practitioners and institutions make, reflected through projects and businesses are somewhat influenced by their respective understanding of economics. Designing economic development and market development projects or any projects claiming to improve human conditions have some deep-rooted economic rationale. But the question is, does such economic rationalities hold their ground in today's complex world order?

Working in Myanmar over the past year or so, I came across strong proponents of traditional development who would oppose market based development approaches, but it is not a problem of traditional approaches or people working in it, rather it is to do with the understanding of economics.

As development professionals we need to stop thinking about the economy as a perfect, self-correcting machine and maybe start thinking of it as a forest.

Traditional economic theory is rooted in a 19th- and 20th-century understanding of science and mathematics. At the simplest level, traditional theory assumes economies are linear systems filled with rational actors who seek to optimize their

situation. Outputs reflect a sum of inputs, the system is closed, and if big change comes it comes as an external shock. The system's default state is equilibrium. The prevailing metaphor is a machine.

But I believe this is not how economies are. Economies behave in ways that are non-linear and irrational, and often violently so. These often-violent changes are not external shocks but emergent properties – the inevitable result – of the way economies behave.

It is possible to understand and describe economic systems as complex systems like a forest. And it is now reasonable to assert that economic systems are not merely similar to ecosystems; they are ecosystems, driven by the same types of evolutionary forces as ecosystems.

In 'The Origin of Wealth', Eric Beinhocker tells a simple story: in an economy, as in any ecosystem, innovation is the result of evolutionary and competitive pressures. Within any given competitive environment, individuals and groups cooperate to compete, to find solutions to problems and strategies for cooperation. Throughout, minor initial advantages get amplified and locked in – as do disadvantages. Whether you are predator or prey, spore or seed, the opportunity to thrive compounds and then concentrates. It clusters. It never stays evenly spread.

Like a forest, the economy consists of an environment and interdependent elements – sun, soil, seed, and water. But far more than a forest, the economy also contains the expectations and interpretations all the agents have about what all the other agents want and expect. And that invisible web of human expectations becomes, in an ever amplifying spiral, both cause and effect of external circumstances.

Traditional economics holds that the economy is an equilibrium system; where certain things over time, return to 'normal'. However considering the economics as a complex system shows that the economy, like a forest, is never in perfect balance and is always both growing and shrinking at the same time.

The root assumption of traditional economic theory is that markets are perfectly efficient and therefore self-correcting. But, of course, markets properly understood are not actually efficient. So-called balances between supply and demand, while representing a fair approximation, do not in fact really exist. And because humans are not rational, calculating, and are selfish, their behaviour in market settings is inherently imperfect, and unpredictable.

Markets are a type of ecosystem that is complex, adaptive, and subject to the same evolutionary forces as nature. As in nature, evolution makes markets an unparalleled way of effectively solving human problems. As complex adaptive systems, markets are not like machines at all but like forests.

Markets have an overwhelming benefit to human societies, and that is their unmatched ability to solve human problems. But markets are agnostic to what kind of problems they solve and for whom. Whether a market produces more solutions for climate challenges or more solutions for industrial growth is a consequence of the construction of that market, and that construction will always be human made, either by accident or by design.

These concentration decisions, to invest in alternative energy or not, to invest in biosciences or not, to invest in computational and network infrastructure or not, are essential choices a nation must make.

This is not picking winners; it's picking games. Public and private sector leaders can and must choose a game to invest in and then let the evolutionary pressures of market competition determine who wins within that game.

As development professionals our role is to work with institutions that catalyse the formation of markets, and use public capital to leverage private capital. To refuse to make such game-level choices is to refuse to have a strategy, and is as dangerous in economic life as it would be in military operations.

Understanding economics in this new way can revolutionise our approach and our politics. The shift from mechanistic models to complex ecological ones is not one of degree but of kind. It is the shift from a tradition that prizes fixity and predictability to a mindset that is premised on evolution. Compare these two frames: in the traditional view, markets are sacred because they are said to be the most efficient allocators of resources and wealth. Complexity science shows that markets are often quite inefficient –and that there is nothing sacred about today's human-made economic arrangements. But complexity science also shows that markets are the most effective force for producing innovation, the source of all wealth creation. The question, then, is how to deploy that force to benefit the greatest number.