Funding the Future

Quantum economics from the perspective of quantum biolo...

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This is the third in a new series that will be published daily during the rest of this week.

The first quantum economics series and then the resulting quantum essays can be found here, but from the outset, whilst we knew the original ten-part series that laid the foundation for ideas on this issue was a starting point, there was always going to be a second series of essays, based on concepts in quantum biology, which is how and why Jacqueline, my wife and co-creator of these ideas, had become interested in these issues in the first place.

This post is chapter 2 in that new series, which will, we hope, provide a deeper explanation of our thinking on what we think is a key issue with the potential to deliver a new understanding of the economy.

A list of previous posts in this series is included at the end of this chapter.

Chapter 2 – The Circuit of Value and Its Pathologies

In living systems, energy does not move at random. It passes through a sequence of steps that control how it is released and where it goes. In cells, this sequence is called the electron transport chain. Electrons move from one carrier to another, releasing energy in small, usable amounts. When the chain works, life is sustained. When it fails, energy leaks away as heat and poisons build up.

Economies work in much the same way. Labour releases value, and that value must travel through the institutions that make up society — firms, banks, governments, and communities. If the flow is steady and the handover secure, value is captured, reused, and renewed. When the flow is blocked, or when parts of the chain hoard what they receive, the whole system weakens. Energy is still expended, but the outcome is waste and regression to an atavistic state, or even disease.

Value in motion

In the first chapter, I suggested that labour is the photon of the economy — the packet of energy that begins everything — and that value is the electron released when labour is absorbed. But electrons do not travel alone. They move through a circuit, connecting one part of the system to another, transforming energy into power.

So it is with value. It moves from workers to wages, from wages to spending, from spending to taxation, and from taxation back into the public services and investments that sustain life. At each step, the circuit must work. Firms must pay fairly, markets must function honestly, governments must tax and spend with purpose, and public services must return what they receive in social benefit.

When any link fails, the flow of value is broken. Money may continue to circulate, but the current of well-being weakens. The signs are familiar: underfunded hospitals, failing schools, insecure work, and communities that feel excluded. These are not isolated problems. They are symptoms of a damaged circuit in which labour's energy no longer reaches its proper destination.

When value leaks

In the cell, when the transport chain fails, electrons escape and form toxins that harm the organism. In economics, when value leaks, the results are similar. The poisons take the form of corruption, tax avoidance, and inequality.

Each leak diverts energy from the common circuit into private reservoirs. Money that could have maintained services, repaired infrastructure, or funded research ends up stored in offshore accounts or locked in property speculation. The system appears to be alive — transactions continue, markets trade, profits rise — but the flow that connects effort to reward, and reward to community, has become interrupted and incoherent.

The more value that leaks away, the harder everyone else must work to sustain the appearance of health. The economy begins to overheat, running faster and faster to maintain a current that no longer reaches the places where it is needed.

Rentierism as cancer

In biology, cancer begins when cells refuse to cooperate. Instead of contributing to the body's shared metabolism, they consume whatever they can to feed their own uncontrolled growth. The same thing happens in economies when rentierism takes hold.

Rentierism is the extraction of income from ownership rather than creation. Landlords, monopoly owners, and financial institutions charge for access to assets they already control. They do not produce new value; they capture the value created by others. Yet their activity absorbs enormous amounts of labour. Lawyers, accountants, and analysts spend their days protecting property rights, designing contracts, and ensuring that

rents continue to flow.

The outcome is a double waste. Labour is expended on maintaining privilege instead of producing new value, and the income drawn off by rentiers deprives others of the means to work productively. The economy resembles a body whose energy is being consumed by tumours. Growth continues, but it is the wrong kind of growth — expansion that weakens the host it depends upon.

The need for regulation

Living systems survive because they regulate themselves. They have brakes that prevent energy from being released too quickly or consumed too fast. In chemistry, one of those brakes is deuterium — a heavier form of hydrogen that slows reactions, keeping them under control.

Regulation performs the same function in economics. Taxation, labour laws, environmental limits, and financial oversight all slow and shape the flow of value so that it sustains rather than destroys. Without them, the circuit overheats. Money rushes through speculative markets, bubbles form and burst, workers are exhausted, and ecosystems collapse under the strain.

Neoliberal ideology treats regulation as friction and friction as failure. But just as an engine without resistance burns itself out, an economy without rules consumes the very energy on which it relies. Regulation is not a brake on prosperity; it is the means by which prosperity becomes durable.

Friction as stability

Speed looks impressive. Deregulated markets trade at the touch of a button, capital crosses borders in seconds, and fortunes are made overnight. Yet every leap in speed increases the risk of loss. Value leaks through gaps in oversight; labour is driven harder for diminishing returns; environmental costs are ignored because they slow the race.

The system begins to resemble a short circuit — a flash of light followed by darkness. What keeps it functioning is not genius or innovation but constant injections of new energy: longer hours, higher debts, deeper extraction. The underlying metabolism is failing.

Friction, by contrast, is a form of care. It gives systems time to adjust, prevents cascading failure, and allows human lives to proceed at a bearable pace. A well-regulated economy is not slower in any meaningful sense; it is steadier, more coherent, and more able to invest in its own future.

Re-connecting the chain

Repairing a broken circuit means restoring each link in the chain that carries value from

labour to life. Firms must pay living wages and treat employment as a partnership, not a transaction. Banks must direct savings into productive investment rather than speculative gain. Governments must collect the taxes that are due and spend them openly for social benefit. Public institutions must turn that spending into services that renew the capacity of people and planet alike.

Every step matters. When wages stagnate, the circuit falters at its first link. When taxes are evaded, the public loop is broken. When investment is channelled into property or financial assets, value piles up uselessly instead of flowing. Reconnection is therefore not one reform but a philosophy: that all parts of society depend on each other, and that value, like energy, only lives in motion.

The moral dimension

Economic breakdown is usually described as a technical problem — a failure of policy or incentive. But it is also a moral one. A society that allows value to be hoarded by a few while others are excluded from meaningful work is not only inefficient; it is unjust.

The waste of labour in rent-seeking, speculation, and corruption is not neutral. It represents lives misdirected, talents unused, and hopes denied. Each act of extraction widens the gap between effort and reward, between the energy that labour releases and the value that society receives. Eventually, that gap becomes a gulf that no rhetoric of growth can conceal.

Repairing the circuit is therefore not just about economics. It is about restoring integrity — the sense that what people contribute will return to them and to others in forms that make life better.

The politics of care

A politics of care would begin from the simple recognition that value must circulate if it is to sustain life. Its priorities would be to strengthen every link in the chain and close every leak that wastes human energy.

That means taxing unearned wealth and land values so that rentier income returns to the common flow. It means regulating finance so that credit serves productive purpose. It means investing in public services that maintain the health, education, and confidence of those whose labour releases value in the first place. And it means recognising that ecological limits are not barriers to progress but the outer wall of the circuit itself — the boundary that must not be breached if energy is to continue flowing.

Such measures are often dismissed as constraints, but they are the conditions of freedom. They are what make it possible for people to live, work, and create without being consumed by the instability of an unregulated system.

Conclusion

The lesson from biology is clear: life depends on controlled flow. Energy must move through the chain that connects all parts of the organism, and every link must do its job. Economies are no different. Labour's photons release electrons of value, but if those electrons are trapped by rentiers, lost through corruption, or allowed to rush destructively through speculative markets, society begins to decay.

Regulation, taxation, and public purpose are not obstacles to prosperity; they are its foundations. They ensure that energy moves in a way that sustains the whole rather than a part, and that the work of each person contributes to the life of all.

An economy that forgets this truth will always appear busy. Lights will flash, numbers will rise, and the surface will seem bright. But beneath that brightness, the current will be fading. The task of politics is to restore the flow — to make the circuit whole again so that every unit of labour's energy becomes value that endures.

Previous posts in this series

* ***The prologue***

* ***Chapter 1: Labour, value and reflection***

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