Economic and Monetary Systems

Nathan Elliott Shantz

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Economic and monetary systems refer to the ways societies structure the creation and circulation of resources, supported by currencies and financial instruments that have evolved over centuries to facilitate trade, investment, and increasingly intricate economic relations. For the majority of human history, economic growth was virtually stagnant. The Maddison Project Database indicates that from year 0 to approximately 1600 CE, global per capita gross domestic product (GDP) grew at a negligible rate, with most people living at subsistence levels, regardless of the century when they were born. In this era, approximately 90% of the global population lived in what can be defined as extreme poverty. The world population grew from approximately 300 million in 1 CE to about 580 million by 1600 CE, resulting in less than a doubling over 1,600 years. During this extended period, global economic output only marginally outpaced population growth, leading to minimal improvements in living standards for most people. The human-driven environmental impacts, although locally significant in certain areas, remained relatively limited both in absolute terms and on a global scale.

The convergence of limited technological capabilities, predominantly agrarian economies, and dispersed human settlements meant that environmental injustices were localized, primarily affecting communities near mines, tanneries, or other pre-industrial production sites. Once humanity entered the 17th century, capitalist structures increasingly formed the foundation of contemporary global economic and monetary systems. This entry traces the history of modern capitalism's emergence through the lens of environmental justice, exploring the implications of capitalist systems for historically disenfranchised groups.

The Widening Reach of Empires and Corporate Expansion

The emergence of corporations in England and the Netherlands in the early 1600’s, combined with remarkable innovations in industrial technologies, marked a pivotal transformation in economic history. Corporations established a divide between ownership and production, fundamentally reshaping human society and its relationship with the environment. In earlier times, individuals needed to exchange money for goods or services in return or operate their own businesses to receive monetary units as income directly. In contrast to previous economic systems in which owners directly managed their productive assets, the corporate model introduced abstract ownership through shares. This revolutionary concept enabled investors to acquire stakes in productive enterprises without any direct participation or proximity to their operations.

Corporations evolved into legal entities capable of owning property, entering contracts, and operating across vast distances, all while being owned by shareholders who may have never witnessed the physical manifestations of their investments. The distinct separation between operation and production created a capital market, enabling entrepreneurs and corporations to scale larger than ever before. This capacity for expansion sparked a boon for economic development, resulting in rapid scaling among international trading companies competing to establish operations across continents. The East India Companies of Britain and the Netherlands were illustrative examples of how capital could be pooled in European financial centers while production occurred in distant colonies. The European owners of these enterprises—shareholders based in Amsterdam or London—often remained unaware of or unaccountable for the environmental and social injustices affecting their production regions in Asia, Africa, and the budding economies in the Americas.

The Industrial Revolution, through innovations such as the steam engine, blast furnaces, mechanical production processes, and the power loom, heightened the divide between ownership, labor, and local communities by establishing factory systems. As industrialization spread, the physical and psychological distance between the owners of the means of production and those affected by production processes widened. Shareholders of corporations that owned factories and production sites could externalize costs—such as pollution, resource depletion, and unsafe working conditions—to others. Shareholders were geographically dispersed and often resided far from their factories, resulting in a complete detachment from any negative consequences.

What began as a logical necessity of industrial expansion solidified into a defining feature of modern capitalism: the systematic separation of profit from its environmental and social costs. The ability to make investment decisions based solely on financial returns while disregarding environmental damage, external costs, and social disruption has allowed capital to flow toward profit-maximizing activities. Consequently, the shift from community-based enterprises to the accumulation of capital in abstract shares enabled investors to prioritize profitability over environmental and social considerations.

In the contemporary global economic system, shaped by late 20th-century financial globalization, capital moves instantaneously across borders, in search of the highest returns, while environmental and social costs remain firmly rooted in place. Investment decisions made in financial centers can dramatically alter ecosystems and communities thousands of miles away, with decision-makers never experiencing the consequences of their choices. The fundamental dislocation between abstract ownership and tangible production presents a core dilemma for environmental justice, as those who benefit most from environmentally harmful practices rarely bear the costs. In contrast, those most affected by these harms, who bear the costs, often receive few benefits and have limited power to influence decisions that affect their lives and environments.

The Environmental Cost of Unprecedented Economic Growth

Since the emergence of the first corporations, the world has undergone a dramatic transformation that began in the 17th century and significantly accelerated after the late 19th century. From 1600 to 2025, the world population increased more than fourteenfold, rising from approximately 580 million to over 8 billion people. The global GDP per capita has also increased by a factor of more than 15 times during this period, reflecting an unprecedented surge in humanity's capacity to produce and consume goods and services.

The rapid economic expansion has tangibly transformed the lives of billions of people. As of 2025, approximately 92% of the global population has access to electricity.More than 1.4 billion vehicles with internal combustion engines traverse the world's roads, consuming fossil fuels and emitting greenhouse gases. And more than 4.7 billion people actively use the Internet, relying on computers and phones made with rare earth minerals, supported by energy-intensive digital infrastructure. Billions utilize central heating and cooling systems, travel by aircraft, consume manufactured goods transported across global supply chains, and generate waste at volumes unimaginable to previous generations.

An often-overlooked consequence of this economic explosion is not only the aggregate effects of rising living standards on the environment but also the impact of increased production on the communities that bear the brunt of environmental degradation, damage, pollutants, and toxins. For example, prominent manufacturing facilities are often located in Asia and export consumer goods to the United States, Europe, and other parts of the world.

At the core of capitalism's environmental challenge lies the concept of externalities, first developed by economist Arthur Pigou in the 1920s. However, the foundational ideas can be traced back to earlier thinkers like John Stuart Mill and Henry Sidgwick. “Externalities” occur when the production or consumption of goods and services imposes costs or confers benefits on third parties not directly involved in the market transaction. Examples of third parties include natural environmental systems and specific communities. Environmental externalities arise when businesses and consumers exploit environmental resources or pollute without bearing the full costs of their actions. Since these costs are external to market prices, they distort resource allocation and encourage environmentally damaging activities. As a result, private decisions that appear rational from an individual or business perspective may prove collectively irrational when their cumulative environmental impact is considered.

Communities facing environmental injustices are often targeted because they lack the political power to resist harmful business developments. In the United States, an array of hazardous waste and toxic facilities are situated in predominantly low-income communities of color, alongside a range of health complications and occurrences of racial and class. For instance, toxic communities such as Cancer Alley in Louisiana and neighborhoods near coal ash ponds in North Carolina face higher rates of respiratory illnesses, cancer, and reduced life expectancy. Indigenous Communities also encounter water contamination due to mining and pipeline projects. Similarly, on a global

scale, communities in the Niger Delta endure persistent oil pollution. Ghanaian residents near electronic waste dumps confront daily exposure to hazardous conditions. Rural villages adjacent to manufacturing zones in Asia and Latin America grapple with contaminated land.

The disconnect between economic decision-makers and those facing environmental consequences can systematically facilitate the transfer of harmful externalities to marginalized populations, and the uneven distribution of political power shapes business decisions across multiple scales. Within nations, environmentally hazardous facilities are often located in disadvantaged communities. Globally, pollution-intensive industries frequently relocate to regions with less stringent environmental regulations. The externality problem has become increasingly acute as the scale of human economic activity has grown exponentially compared to the relatively fixed capacity of the world biosphere. The global economy extracts and processes more materials than the Earth can replenish, releasing waste products, including greenhouse gases, at a rate that exceeds the capacity of natural systems. This linear “take-make-dispose” model fundamentally contradicts the circular dynamics of ecological systems. This extractive model can lead to inequalities, where those who benefit the least from economic development face the most significant impacts. These communities and individuals often accumulate waste, pollution, and toxins from nearby industrial operations.

The placement of toxic waste sites, natural resource extraction, and hazardous industrial facilities is governed by a complex and opaque nexus of political and economic power. Scholars define these chosen locations as “sacrifice zones,” or areas where environmental quality is surrendered for monetary gain, typically without meaningful consent from affected communities. In each transaction, there exists a producer supply chain and a final consumer (i.e., the seller and buyer); however, third parties not privy to the transaction often experience negative side effects that cloud their skies, taint their waters, and diminish their futures without a dollar in compensation.

Intersection of Economic Systems and Environmental Justice

The environmental justice perspective illuminates how economic systems structure the relationship between humans and nature, as well as the interactions among different groups within society. In conventional capitalism, natural resources are primarily viewed as inputs for production rather than the foundation of all economic activity. This perspective enables decision- makers to neglect environmental impacts that occur at a distance—whether geographically, temporally, or socially.

The challenge of environmental justice is particularly acute in a globalized economy in which production chains extend across multiple national jurisdictions. Economic forces that separate production from consumption can obscure responsibility for environmental harms, making it challenging to implement effective governance. When consumers in wealthy nations purchase goods manufactured under lax environmental standards in developing countries, they may unwittingly contribute to environmental injustice.

A diverse array of environmental economists has developed comprehensive and innovative frameworks that systematically mainstream nature's value into economic decision- making.

Scholars, environmental justice activists, and policy experts highlight that natural resources should be regarded as a form of capital on which all wealth depends to advance good governance and sustainability. Various policy mechanisms have been developed to address environmental externalities and advance environmental justice. Environmental taxes and fees aim to internalize external costs by requiring polluters to pay for environmental damage, thereby aligning private incentives with social welfare. These mechanisms can directly protect vulnerable communities by creating funds for remediation efforts in contaminated areas and supporting public health initiatives in regions disproportionately affected by industrial pollution.

In the same vein, “cap-and-trade” systems establish overall pollution limits while allowing market mechanisms to allocate emission rights efficiently. When designed with equity considerations, these systems can include provisions to prevent pollution hotspots in disadvantaged communities and ensure that emissions reductions benefit those who have historically been overburdened by environmental hazards.

Extending producer responsibility policies holds manufacturers accountable for their products across their entire lifecycle, including disposal and recycling. Such environmental justice approaches help close the loop in production systems and reduce the volume of waste that natural systems or local communities must absorb. These policies particularly benefit less developed regions historically serving as disposal grounds for discarded products from wealthy nations.

Corporate social responsibility initiatives across global supply chains can protect vulnerable workers and communities when they include robust labor standards, fair compensation practices, and meaningful community consultation. Meanwhile, stricter environmental laws and regulations create protective frameworks for marginalized populations by establishing enforceable rights to clean air, water, and soil, as well as legal recourse for environmental injustices that might otherwise go unaddressed in communities lacking political or economic power.

Cultivating Wealth Within Earth’s Natural Constraints

Reconciling humanity's insatiable appetite for consumption with Earth's finite resources represents the defining challenge of the 21st century. As billions more people aspire to achieve the living standards of affluent nations, the pressures on natural resource extraction, carbon emissions, ocean ecosystems, and manufacturing capabilities grow stronger every day. Communities worldwide, especially those with limited political and economic influence, are increasingly shouldering the impacts of environmental degradation, for which they had minimal involvement in causing.

The fundamental disconnect between those who make economic decisions and those who bear their consequences creates a profound dilemma. Our current economic arrangements have proven remarkably effective at generating material prosperity; however, in some cases they have simultaneously incentivized the systematic externalization of environmental and social costs. These costs do not disappear; they simply shift to different shoulders, often those of future generations and communities with the least political voice.

What remains unclear is how to effectively address the challenges embedded in global economic and monetary systems. While various approaches have been proposed—from market- based mechanisms such as carbon pricing to more radical corporate governance restructuring— no single solution has demonstrated the scale, speed, and effectiveness required to realign economic incentives with ecological realities. The complexity of global supply chains, the power dynamics between nations, and the legitimate aspirations of developing economies for improved living standards complicate straightforward answers. Marrying economic growth with environmental sustainability requires experimentation, cultural changes, technological advancements, and institutional reform. Sustainable economic development necessitates navigating difficult trade-offs and promoting collaborative problem-solving among traditionally adversarial groups. The path ahead is not predetermined, and prescriptive solutions may oversimplify the challenge.

What is certain is that the status quo cannot remain. A system prioritizing economic growth without fully accounting for its ecological and social costs is reaching its natural limits and cannot continue indefinitely. The growing global environmental justice movement, emerging technological possibilities, and increasing awareness of planetary boundaries all point toward the need for economic systems that better account for their full impacts while protecting those who do not have a voice. At the same time, relying purely on regulation and penalties is likely not going to be an effective approach if we are to aspire for economic sustainability and human flourishing. Private sector companies and entrepreneurs need to be given the tools to pursue technological innovation in areas such as renewable energy, materials science, and sustainable production methods to continue to lower the cost of environmental stewardship, while robust institutions and governance structures ensure that benefits and burdens are equitably distributed. The principles of circular economy, natural capital accounting, and true cost economics offer promising frameworks for this transition. Circular economy emphasizes designing production systems that minimize waste and keep materials in use for as long as possible. Natural capital accounting assigns economic value to environmental assets such as forests, water, and biodiversity, recognizing them as part of national wealth. True cost economics incorporates hidden social and environmental costs into market prices, ensuring that economic signals more accurately reflect ecological realities. By internalizing externalities through well-designed market mechanisms, economic signals can better reflect ecological realities. This is easier said than done in practice.

As economists increasingly recognize the limitations of GDP as a measure of progress, alternative metrics that capture wellbeing, across socioeconomic segments of society, are gaining traction. These multidimensional approaches to measuring economic success allow societies to prioritize forms of development that enhance human flourishing while limiting the testing of planetary boundaries. The challenge requires neither naive optimism nor fatalistic pessimism, but rather clear-eyed determination to redesign our economic systems for long-term sustainability. By properly valuing natural capital, incentivizing sustainable innovation, and ensuring that market prices reflect true ecological costs, economies can be created that deliver prosperity without depleting the natural systems upon which all wealth ultimately depends. This transition, while demanding, offers the opportunity to create economic arrangements that are not only more

sustainable but fundamentally more equitable and fulfilling—a legacy of responsible stewardship that will benefit countless generations to come.

See also Circular Economy; Economics of Energy

Further Readings

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