

SUSTAINABLE GROWTH IDEAS BY THE AUSTRIAN SCHOOL OF ECONOMICS
A MARKET-BASED APPROACH TO ENVIRONMENTAL SUSTAINABILITY

Ashok M, PhD Scholar, Srinivas University, Mangalore. ORCID: 0009-0003-1163-1932; Email: ashok.21aug@gmail.com

V. Basil Hans, Research Professor, Srinivas University, Mangalore, ORCID: 0000-0003-2713-2188
Email: vhans2011@gmail.com

ABSTRACT:

This study critically examines the suitability of Austrian School economic principles for sustainable development, given their distinct methodological foundations emphasising individualised knowledge and market processes over centralised planning. Although fundamentally different from Keynesian approaches that focus on GDP and expenditures, Austrian economics offers unique insights through its emphasis on market dynamics and entrepreneurial discovery. This research explores how price signals convey knowledge dispersed throughout society and how entrepreneurial alertness leads to efficient resource allocation and sustainable management practises. Through an empirical analysis of market-driven systems and case studies on India's environmental sector, including renewable energy initiatives and waste management solutions, this study reveals both the strengths and limitations of the Austrian approach. Although property rights and market mechanisms demonstrate effectiveness in addressing local environmental challenges, they show significant constraints in tackling large-scale pollution and climate change, particularly when dealing with multiple stakeholders and complex causes. Time preference theory and capital structure analysis provide insights into how market participants balance immediate returns with long-term sustainability goals. The study also investigates how institutions develop through grassroots efforts and formal frameworks, indicating that successful environmental management requires a combination of both approaches. The findings indicate that sustainable development frameworks must adopt Austrian market principles while acknowledging their inherent limitations in addressing complex environmental challenges. This requires careful institutional design that harnesses the benefits of decentralised decision-making while providing adequate mechanisms to protect common resources and address market failures.

Key-words: Austrian School of Economics, sustainable development, market mechanisms, entrepreneurial innovation, environmental management, institutional frameworks

ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY: CONTEMPORARY CHALLENGES:

In the contemporary landscape of economic thought, Keynesian principles serve both as a measurement methodology and policy guide, with GDP and expenditures as central metrics. Despite what free-market advocates believe, markets function within the broad parameters set by the State. Traditional economic approaches, born from an era of unrestrained optimism in quantitative growth, now face their greatest challenge: the mounting tension between growth and the finite nature of planetary resources.

This study examines how Austrian economic principles can contribute to sustainable development by analysing three key areas: local knowledge and price mechanisms in environmental markets, entrepreneurial innovation in sustainable solutions, and institutional frameworks for environmental governance. Throughout, we evaluate both the potential and limitations of Austrian approaches to achieving sustainable development goals.

Sustainability fundamentally redefines economic development, acknowledging the limitations of traditional measures like GDP in accounting for environmental costs. This shift is particularly evident in urban areas, which have become focal points of modern development challenges.

Cities today face mounting pressure on two fronts: immediate economic challenges like cost-of-living crises and escalating environmental threats such as climate change and biodiversity loss. Existing

sustainability metrics track these issues separately. However, they often fail to capture the complex interactions between economic and environmental factors.

This limitation is particularly concerning as environmental risks dominate global threat assessments, with five of the top ten long-term global risks being environmental¹. Sustainable development requires balancing short-term economic priorities with long-term environmental protection.

STUDY OBJECTIVES AND LIMITATIONS

This study investigates the economic principles of the Austrian School and their applicability to sustainable development. The Austrian School advocates for marketplace-driven solutions and a decentralised approach, which may have benefits in addressing environmental issues. For instance, the success of carbon trading markets in the European Union demonstrates how market mechanisms can drive environmental improvements - the EU Emissions Trading System (EU ETS) has achieved a 47.6% reduction in emissions from installations compared with 2005 levels, driven by a sustained carbon price signal². The fundamental principles of Austrian economics, particularly its focus on entrepreneurial discovery, price mechanisms, and capital structure, provide potential tools for addressing sustainability challenges. This entrepreneurial discovery process is evident in Tesla's transformation of the automotive industry, where its market-driven approach has accelerated electric vehicle adoption and spawned a global charging infrastructure network.

This study offers a neutral assessment of Austrian economics in relation to sustainability, refraining from making a case for unregulated free markets or criticising neoclassical and collectivist methods extensively. Instead of adopting a particular ideological perspective, this study compares the effectiveness of market-driven and government-managed approaches to achieving long-term environmental goals. The aim is to combine the theoretical underpinnings, market-driven solutions and empirical insights from the Austrian School to develop practical applications and policy recommendations applicable to promoting sustainable growth. Having established our study objectives, we begin our analysis by examining how local knowledge and individual actions serve as foundational elements in environmental markets. These mechanisms provide a basic framework through which Austrian economic principles can be applied to sustainability challenges.

LOCAL KNOWLEDGE AND INDIVIDUAL ACTION IN ENVIRONMENTAL MARKETS:

Three critical market mechanisms—price signalling, localised decision-making, and direct feedback loops—form the foundation of effective environmental markets, emerging from society's dispersed knowledge structure³. These mechanisms enable individuals and local actors to translate their specialised knowledge into environmental solutions, as seen when farmers adapt to water scarcity through responsive pricing and resource management. The *Bove v. Donner-Hanna Coke Co.* (1932) case validates this approach. In this case, local residents' firsthand experience with industrial pollution proved more reliable than centralised assessments⁴. This legal precedent demonstrates how property rights and voluntary negotiations between affected parties often surpass centralised regulation in effectiveness, supporting the principle that environmental solutions emerge most successfully from individual rather than collective action.

Rothbard⁵ highlighted that individuals are the only entities capable of acting with purpose and motivation. In discussions about "corporate pollution" or "market responses," what's really at issue is individuals making particular choices. The factory's environmental effects are influenced by the choices made by its supervisors and workers, who have the ability and drive to change their procedures. A notable example is Interface's CEO Ray Anderson, who transformed his petroleum-intensive carpet manufacturing company into a leader in sustainable production, reducing the company's carbon footprint by 96% over 25 years through individual leadership and employee-driven innovations⁶.

Although individual actions drive change, market mechanisms provide the framework for channelling these actions toward sustainable outcomes. This is particularly evident in entrepreneurial behaviour. As Kirzner⁷ notes, the entrepreneur's role is one of "alertness to previously unnoticed opportunities".

Their natural alertness leads them to use resources efficiently by limiting costly inputs and using cheaper ones, and by focusing production on higher-priced goods that are in demand and steering clear of lower-priced items that are abundant. This entrepreneurial alertness to environmental opportunities is demonstrated by TerraCycle's Tom Szaky⁸, who identified the untapped market for recycling hard-to-process waste streams and built a global recycling company that now partners with major corporations to reduce packaging waste.

A price-guided allocation mechanism is ideally suited to sustainable resource management because price signals allow entrepreneurs to naturally steer resources towards their most valued and sustainable applications.

These insights into local knowledge and individual action provide a foundation for understanding how institutions evolve and adapt to environmental challenges. The way in which individuals translate their specialized knowledge into environmental solutions foreshadows the broader patterns of institutional development we will examine in Section 9.

PRICE MECHANISMS AND MARKET EFFICIENCY IN RESOURCE ALLOCATION:

Hayek stressed that prices convey knowledge dispersed throughout society, whereas Rothbard contended that free market prices are crucial for rational economic calculation and resource allocation. Any outside influence disrupts these essential market indicators. Price distortions undermine environmental protection in multiple contexts: cap-and-trade markets see firms exploiting price controls to increase emissions⁹, whereas China's artificially depressed prices led to excessive resource use and pollution¹⁰.

In his work "Human Action", Mises¹¹ highlighted that market prices emerge through natural discovery processes, not artificial construction. Prices arise from real-time interactions between individuals, facilitating decentralized economic coordination.

Market participants leverage information disparities to drive market processes, transforming knowledge gaps into opportunities. The Austrian perspective emphasises that market equilibrium depends on coordinating varied expectations and knowledge between buyers and sellers, going beyond mere price stability to align fragmented information and temporal plans.

Price signals play a crucial role in green growth adoption, but their effectiveness is debated. While the World Bank¹² advocated strategic policies to drive environmental protection through green growth, Austrian economists argue that market distortions from taxation and regulation suppress price signals that would naturally accelerate environmental innovation.

This creates a fundamental tension: green growth proponents claim that market mechanisms are too slow for urgent environmental challenges, while Austrians contend that removing price distortions would enable faster market-driven sustainable solutions. The relationship between price signals and market efficiency becomes particularly crucial when examining how capital is allocated for sustainable development, as we will explore in Section 6.

MARKET DISCOVERY AND INNOVATION IN ENVIRONMENTAL ENTREPRENEURSHIP :

The foundation for market-driven environmental innovation rests on two key theoretical pillars. First, Kirzner's entrepreneurial discovery process emphasises how entrepreneurs identify opportunities through causal relationship analysis and pattern recognition, going beyond surface-level data to uncover unmet needs. This process builds on localised, firm-specific knowledge that accumulates over time, supported by Hayek's concepts of dispersed market information.

Second, Schumpeter's creative destruction theory¹³ and modern innovation systems theory¹⁴ provide frameworks for understanding how innovations scale across economic systems. Building on these theories, we propose a dual-layer structure for sustainable innovation: a foundational layer of market-based systems enabling price discovery and capital allocation, complemented by a specialised layer facilitating regional and sectoral sustainability initiatives. This framework synthesizes traditional

Austrian economic principles with contemporary innovation systems thinking to explain how sustainable innovations can scale from local discovery to system-wide adoption.

Innovation networks play a crucial role in this framework by enabling knowledge and skill exchange between companies. These networks allow businesses to jointly address complex problems through experimental methods while promoting mutual understanding in unexplored technological territories. However, this collaborative process faces challenges from skill shortages and technological uncertainty¹⁵.

These theoretical principles are evident in India's environmental sector, where companies demonstrate the effectiveness of decentralised market-led initiatives. For instance, Renew Power, Tata Power, Waste Ventures India, and GPS Renewables are successfully driving sustainability through innovative renewable energy and waste management approaches. Their success illustrates how entrepreneurial discovery can translate into practical environmental solutions through market mechanisms.

This integrated framework demonstrates how sustainable innovations can emerge and scale in practise, bridging the gap between individual entrepreneurial discovery and broader market adoption. The success of these companies demonstrates how the theoretical principles of market discovery and innovation networks can be effectively applied to environmental challenges, creating scalable solutions through market mechanisms and supportive institutions. These practical examples demonstrate the success of market-driven environmental initiatives, their implementation relies heavily on effective capital allocation and investment strategies. Understanding how capital theory intersects with sustainable development is crucial for translating these innovative solutions into long-term environmental improvements.

CAPITAL THEORY AND INVESTMENT HORIZONS IN SUSTAINABLE DEVELOPMENT

Building on the price mechanism discussion in Section 4, we can observe how market signals directly influence capital allocation in sustainable ventures. Herbener's¹⁶ time-preference theory explains how people weigh immediate gratification against future rewards. Time preferences fundamentally shape how entrepreneurs accumulate capital in sustainable ventures. For example, renewable energy infrastructure demands high upfront costs with 20-30 year returns, while sustainable forestry projects, despite higher eventual yields, often lose funding to conventional logging's quicker profits. These patterns demonstrate how time preferences determine which sustainable innovations receive development capital.

The relationship between price mechanisms and capital allocation is particularly evident in renewable energy markets. When price signals accurately reflect resource scarcity (as discussed in Section 4), they guide capital investment towards more sustainable alternatives. For example, rising fossil fuel prices combined with declining renewable energy costs create price signals that encourage capital reallocation towards sustainable infrastructure. However, as noted in our earlier discussion of price distortions, government interventions can either accelerate or impede this process by affecting the accuracy of these market signals.

Sustainable investment patterns arise from the convergence of Austrian capital theory, transmaterialization ideas, and actual data analysis. Menger's¹⁷ theory of higher-order goods explains how capital investment moves through various stages of production over time, with value generated from anticipated consumer demands.

Labys and Waddell's¹⁸ transmaterialization theory, proposed in 1989, implies that material substitution follows predictable cycles driven by technological progress. However, Cleveland and Ruth's¹⁹ empirical study contradicts the assumption that dematerialisation occurs automatically. Their study revealed that economic growth is closely linked to material usage, indicating that technological progress alone cannot drive material reduction.

Sustainable investments must be supported by manufacturing systems that match established waste reduction methods. These systems must acknowledge the importance of entrepreneurial innovation processes, as highlighted in Austrian economic theory. Such processes are essential for discovering

and implementing environmental innovations in response to shifting market signals. This relationship between capital investment decisions and resource utilization naturally leads us to consider how these resources can be effectively managed across generations.

AUSTRIAN PERSPECTIVES ON ENVIRONMENTAL RESOURCE MANAGEMENT:

Resource management across generations presents a key challenge, where sustainability frameworks and Hayekian approaches offer different solutions. The temporal aspects of capital investment discussed above directly influence how resources are allocated and managed over time. While sustainability advocates explicit planning and welfare criteria, Hayek emphasises market processes and local knowledge for resource allocation. These approaches can be integrated through institutions that combine market efficiency with sustainability boundaries, providing complementary mechanisms for intergenerational resource management.

Effective environmental management requires local expertise and knowledge. Those working directly with natural resources have a valuable contextual understanding of historical patterns and proven sustainable practises. The Austrian approach favours decentralised decision-making over centralised planning because local stakeholders better understand resource constraints and impacts in their areas. Their direct experience in resource management makes them valuable for developing effective environmental solutions.

While this decentralised, knowledge-based approach aligns well with traditional resource management scenarios, its application becomes more challenging in modern contexts. The Austrian emphasis on local knowledge and decentralised decision-making provides valuable insights into environmental management. However, although this framework uses market mechanisms such as property rights and price systems, it is limited by complex urban challenges. These market tools alone struggle to address pollution and climate change because of two key challenges: the difficulty of establishing clear ownership over environmental resources (like clean air), and the practical constraints in enforcing environmental property rights across borders and generations.

Markets function best when property rights are well-defined, prices reflect scarcity and parties can negotiate freely—conditions that environmental issues often lack. This indicates that successful solutions require institutional structures that go beyond pure market approaches.

The Austrian approach to growth incentives relies on market mechanisms for environmental management. Property rights create incentives for sustainable resource use by allowing markets to set prices that reflect scarcity. Supporting institutions - courts, property laws, and contracts, provide the framework for stakeholders to coordinate their environmental decisions. Market-based instruments, such as emissions trading and pollution fees, help to align profit motives with environmental protection. Emissions trading allows markets to determine optimal pollution levels through permit trading, whereas pollution fees directly price environmental impacts. These mechanisms create a system in which market participants benefit from sustainable practises while internalising environmental costs. Although market-based instruments provide important mechanisms for environmental management, their effectiveness ultimately depends on well-defined property rights and trade freedoms. These fundamental elements of Austrian economics deserve closer examination for their role in environmental governance.

PROPERTY RIGHTS AND TRADE FREEDOM IN ENVIRONMENTAL GOVERNANCE:

The effectiveness of property rights in environmental governance varies significantly depending on the scale and complexity of the environmental issue at hand. In localised scenarios with clearly defined parties - such as when a factory's waste discharge affects a nearby farm's water supply - property rights create an effective framework. Here, clear ownership rights enable the farmer to seek compensation through courts and negotiate solutions directly with the factory owner, demonstrating the system's efficiency in handling discrete environmental conflicts.

However, this property rights framework encounters significant limitations when applied to large-scale environmental challenges. Environmental issues often cross jurisdictions and involve numerous parties. For example, air pollution involves millions of sources affecting billions of people globally. In such cases, traditional property right enforcement becomes increasingly impractical. This is due to two factors: the multiplicity of parties involved and the difficulty of proving specific damage from specific sources.

This tension between local and global environmental governance leads us to consider Hayek's fundamental conception of freedom as "independence of the arbitrary will of another"²⁰. Building on this principle, environmental policy must strike a delicate balance between competing liberties. While perfect freedom may be unattainable, policy frameworks should aim to minimise coercion while preserving essential choices. Dolan's analysis extends this understanding by demonstrating how environmental solutions require market mechanisms that respect both producer and consumer rights.

The "first user" doctrine of homesteading rights offers a potential framework for resolving environmental disputes. As Rothbard argues, "where a 'polluter' has come first to the pollution and has preceded the landowner in emitting air pollution or excessive noise onto empty land, he has thereby homesteaded a pollution or excessive noise easement." This homesteading framework attempts to provide a market-based approach to environmental conflict resolution by recognising pre-existing property rights rather than imposing arbitrary regulatory solutions.

The ultimate objective of these property rights frameworks is to establish organisational structures where price signals can facilitate the coordination of environmental decisions without imposing arbitrary force. This allows individuals to make choices based on their own plans and decisions, with compensation and costs distributed through market-based price mechanisms rather than regulatory requirements. However, it is important to note that while Rothbard's homesteading theory holds significant theoretical value in libertarian legal thought, its practical implementation in environmental law has been limited. Contemporary environmental law generally prioritises regulation and public health protection over historical use rights, reflecting the challenges of applying pure property rights solutions to complex environmental problems. The limitations of pure property rights approaches in addressing complex environmental challenges reveal a crucial insight: effective environmental governance requires institutional frameworks that can bridge the gap between individual property rights and collective environmental needs. This interplay between property rights and institutions raises fundamental questions: How do institutions emerge to protect environmental resources when property rights alone prove insufficient? How can institutional frameworks preserve the benefits of property rights while addressing their limitations in environmental governance? These questions lead us to examine the critical role of institutions in environmental management.

ROLE OF INSTITUTIONS:

Building on this analysis of property rights limitations, we find that institutional frameworks play a vital role in addressing environmental challenges that exceed the scope of individual property rights. Austrian economics addresses this institutional question by challenging expert control over development and innovation, drawing on the principles of local knowledge discussed in Section 3. Just as property rights emerge from and protect individual actions, effective institutions develop from the bottom up, shaped by local knowledge and experience rather than top-down expertise. This bottom-up development is evident in how individual farmers adapt to water scarcity through their specialised understanding of local conditions, demonstrating how successful institutions emerge from diverse knowledge and experiences. As Easterly²¹ notes, "The growth of reason is a social process based on the existence of such differences". This focus on decentralized knowledge directly contradicts expert-driven development models, as Hayek demonstrates that centralised control leads to stagnation rather than progress.

The relationship between local knowledge and institutional evolution is particularly evident in environmental governance. The same mechanisms that enable individuals to translate their specialised

knowledge into environmental solutions (as explored in Section 3) also shape institutional development and adaptation. This is illustrated by various communities' experiences. In such cases, local environmental practices first emerge from individual experience and knowledge. These practises then gradually become formalised into institutional frameworks. This bottom-up development mirrors the environmental solutions we observed in individual market participants.

The evolution of effective institutions often follows bottom-up rather than top-down patterns, as illustrated by two key examples:

The Orma community in Kenya demonstrates how institutional changes emerge through social influence. Research by Ensminger²² shows how community elites initiate changes through bargaining power. Practices like clan exogamy spread naturally through the community. This spread occurred as wealthy and high-status individuals adopted these practices first. Their adoption created a model for others to follow.

Acemoglu's research on colonial institutions research²³ reveals how initial institutional choices create lasting development patterns. Extractive colonial institutions generally persisted in regions with high settler mortality. However, Australia provides a notable counterexample. There, settlers successfully built effective local institutions that protected property rights. This was achieved despite colonial opposition. This demonstrates Hayek's principle of successful bottom-up institutional evolution.

In environmental governance, although formal structures help coordinate decisions, Henrich²⁴ finds that local customs typically have greater impact than official regulations, even in highly centralized societies. This aligns with Austrian economic principles about the importance of individual actions and local knowledge in driving social change. Effective environmental governance often emerges from grassroots practices shaped by direct experience with local resources, supported by formal institutional frameworks that enable rather than dictate solutions. While these institutional insights provide valuable direction for environmental governance, several critical gaps remain in the Austrian economic framework's application to environmental challenges. These gaps require careful examination to advance our understanding of market-based environmental solutions.

RESEARCH GAP :

The preceding analysis of property rights and institutions reveals several fundamental challenges in applying Austrian economics to environmental management. These challenges represent critical research gaps that must be addressed to develop more effective market-based environmental solutions. The Austrian economic framework faces critical research gaps in environmental management. Building on the property rights challenges discussed in Section 8, transboundary environmental issues highlight broader framework limitations. Additional gaps include: (1) market innovation speed versus environmental urgency, particularly in renewable energy adoption, (2) time preference conflicts between short-term profits and long-term sustainability, (3) institutional design balancing decentralised markets with environmental coordination, and (4) pricing mechanisms for common environmental goods.

Rothbard's²⁵ analysis demonstrates how these challenges manifest in environmental liability cases. The complexity of multiple pollution sources makes proving causation nearly impossible, leaving victims without recourse. Future research must develop frameworks that maintain market efficiency while ensuring environmental protection across jurisdictions and timeframes, combining Austrian principles with new institutional approaches to collective environmental challenges.

CONCLUSION:

The analysis of Austrian economic principles in relation to sustainable development reveals both promising applications and notable limitations. The Austrian School's focus on decentralised decision-making, market functions and entrepreneurial discovery provides valuable mechanisms for environmental management, while highlighting instances where market mechanisms alone may be inadequate. Market prices play a vital signalling role in resource allocation, whereas entrepreneurial

discovery drives innovation in sustainable technologies and practises, as demonstrated by companies like Renew Power and Waste Ventures India.

However, the Austrian approach faces significant challenges when addressing complex environmental issues such as climate change and widespread pollution, particularly due to difficulties in establishing clear property rights and liability in cases of widespread environmental degradation. The findings indicate that successful sustainable development requires combining market processes and entrepreneurship with institutional frameworks that can mitigate market failures and facilitate coordinated responses to environmental challenges.

Future research should focus on creating institutional frameworks that harness market advantages while addressing their environmental management limitations. Success requires balancing market freedom with environmental protection through frameworks that encourage entrepreneurial solutions while protecting shared resources for future generations.

REFERENCES:

1. World Economic Forum. (2024). The Global Risks Report 2024 (19th ed.). <https://www.weforum.org/reports/global-risks-report-2024>
2. European Commission. (2024, February 19). 2024 carbon market report: Stable and well-functioning market driving emissions down in power and industry. Climate Action. https://climate.ec.europa.eu/news-your-voice/news/2024-carbon-market-report-stable-and-well-functioning-market-driving-emissions-power-and-industry-2024-11-19_en
3. Hayek, F. A. (1945/2013). The use of knowledge in society. In *Modern understandings of liberty and property* (pp. 27-38). Routledge.
4. Dolan, E. (2014). The Austrian Paradigm in Environmental Economics: Theory and Practice. *The Quarterly Journal of Austrian Economics*, 17(2), 197-217.
5. Rothbard, M. N. (1962/2004). *Man, economy, and state with power and market*. Ludwig von Mises Institute.
6. Interface. (2023). Interface announces Mission Zero success, commits to Climate Take Back [Press release]. PR Newswire. Retrieved from <https://www.prnewswire.com/news-releases/interface-announces-mission-zero-success-commits-to-climate-take-back-300949740.html>
7. Kirzner, I. M. (1973/1994). *Competition and entrepreneurship*. University of Chicago Press.
8. Szaky, T. (2023). Letter from CEO Tom Szaky—2023 retrospective. TerraCycle. Retrieved from <https://www.terracycle.com/en-US/pages/year-in-review>
9. Stocking, A. (2011). Unintended consequences of price controls: An application to allowance markets. *Journal of Environmental Economics and Management*. <https://doi.org/10.1016/j.jeem.2011.07.005>
10. Ji, Z. (2020). Does factor market distortion affect industrial pollution intensity? Evidence from China. *Journal of Cleaner Production*. <https://doi.org/10.1016/j.jclepro.2020.122136>
11. Mises, L. V. (1949). *Human Action*. Fox & Wilkes.
12. World Bank. (2012). *Inclusive Green Growth: The Pathway to Sustainable Development*.
13. Schumpeter, J. A. (1911). *The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle*. Harvard University Press.
14. Meuer, J., Rupietta, C., & Backes-Gellner, U. (2015). Layers of co-existing innovation systems. *Research Policy*, 44(4), 888-910. <https://doi.org/10.1016/j.respol.2015.01.013>
15. Hanusch, H., & Pyka, A. (Eds.). (2007). *Elgar Companion to Neo-Schumpeterian Economics*. Edward Elgar Publishing.
16. Herbener, J. M. (Ed.). (2011). *The pure time-preference theory of interest*. Ludwig von Mises Institute.
17. Menger, C. (1871/1976). *Principles of Economics*. (J. Dingwall & B. F. Hoselitz, Trans.). Institute for Humane Studies.

18. Labys, W. C., & Waddell, L. M. (1989). Commodity lifecycles in US materials demand. *Resources Policy*, 15(3), 238-252.
19. Cleveland, C. J., & Ruth, M. (1999). Indicators of dematerialization and the materials intensity of use. *Journal of Industrial Ecology*, 2(3), 15-50.
20. Hayek, F. A. (1960). *The constitution of liberty*. University of Chicago Press.
21. Easterly, W. (2014). *The Tyranny of Experts: Economists, Dictators, and the Forgotten Rights of the Poor*. Basic Books.
22. Ensminger, Jean, and Jack Knight. (1997). "Changing Social Norms: Common Property, Bridewealth, and Clan Exogamy." *Current Anthropology* 38(1): 1–24.
23. Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The colonial origins of comparative development: An empirical investigation. *American Economic Review*, 91(5), 1369-1401.
24. Henrich, Joseph. (2009b.) "The Evolution of Innovation-Enhancing Institutions." In *Innovation in Cultural Systems: Contributions in Evolution Anthropology*, ed. Stephen J. Shennan and Michael J. O'Brien. Cambridge, Mass.: MIT Press
25. Rothbard, Murray N. (1982) "Law, Property Rights, and Air Pollution," *Cato Journal* 2, no. 1: 55–99.