

<https://helda.helsinki.fi>

Mainstream Economics and Conventional Environmental Policies

Obeng-Odoom, Franklin

2022-05

Obeng-Odoom , F 2022 , ' Mainstream Economics and Conventional Environmental Policies
' , American Journal of Economics and Sociology , vol. 81 , no. 3 , pp. 443-472 . <https://doi.org/10.1111/ajes.12476>

<http://hdl.handle.net/10138/348046>

<https://doi.org/10.1111/ajes.12476>

cc_by_nc_nd

publishedVersion

Downloaded from Helda, University of Helsinki institutional repository.

This is an electronic reprint of the original article.

This reprint may differ from the original in pagination and typographic detail.

Please cite the original version.

Mainstream Economics and Conventional Environmental Policies

By FRANKLIN OBENG-ODOOM*

ABSTRACT. Is mainstream economics only about growth, efficiency, and sustainability? Many critics contend so, but the recent state of the art in economics suggests not. Respectively drawing on reformist neoclassical economics, neoclassical microeconomics “proper,” and behavioral economics, major studies show that mainstream economics provides theories of inequality and unsustainability. However, the theories of causation utilized remain largely neoclassical. Similarly, the bases for repairing the harms are grounded in neoclassical reasoning, while the mechanisms for restoration—ranging from minimalist interventions and income and substitution effects to behavioral nudges—are still mainstream. Fundamentally, they say little or nothing substantial about ecological imperialism, at the heart of which are rent theft and ecological debt, two critical cornerstones of world ecological crises. Therefore, mainstream economists certainly have, use, and apply theories of inequality and unsustainability, but mainstream economists neither have, use, nor apply transformative theories of social stratification, nor ecological imperialism generally. The overall effect of this disconnect from real-world ecological crises is not simply that conventional environmental policies are incomplete, but that mainstream economics and conventional policies deflect attention from ecological imperialism behind veils of rhetoric, prices, and behaviors.

* Helsinki Institute of Sustainability Science associate professor at Global Development Studies, the University of Helsinki, Finland. Obeng-Odoom’s research interests are centered on the political economy of development, urban and regional economics, and natural resources and the environment, fields in which he has published six sole-authored books, including *Global Migration Beyond Limits: Ecology, Economics, and Political Economy* (Oxford University Press 2022) and *The Commons in an Age of Uncertainty* (University of Toronto Press 2021). He is an Elected Fellow of the Ghana Academy of Arts and Sciences. Email: franklin.obeng-odoom@helsinki.fi

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial, and no modifications or adaptations are made.

American Journal of Economics and Sociology, Vol. 81, No. 3 (May, 2022).

DOI: 10.1111/ajes.12476

© 2022 The Author. The American Journal of Economics and Sociology published by Wiley Periodicals LLC on behalf of American Journal of Economics and Sociology, Inc.

Introduction: Inequality and Ecological Crisis

Greater inequalities threaten the extinction of species. Persistent stratification ratchets up the exposure of marginalized groups to environmental harms, which, in turn, impact various groups differently (Boyce 2020). Environmental policies designed from these uneven ecological crises have become hugely controversial. Consider those proposed by mainstream economists in positions of power.

Lawrence Summers (1991), then Chief Economist of the World Bank, noted in a leaked memo:

[S]houldn't the World Bank be encouraging MORE migration of the dirty industries to the LDCs [least developed countries]? ... I think the economic logic behind dumping a load of toxic waste in the lowest wage country is impeccable and we should face up to that. ... I've always thought that under-populated countries in Africa are vastly UNDER-polluted.

Thirty years later, the same logic was at work: The cost-benefit case the U.S. Environmental Protection Agency made under the Trump administration for repealing the Clean Power Plan ... assigned a value of zero to all climate impacts outside the U.S., reasoning that harms to people not in the country should not be considered in the making of U.S. climate policy. (Boyce 2021: 103)

Clearly, the twin problems of rising global inequalities and ecological crises remain invisible in mainstream economics. To correct them will require new modes of thought and action.

Mainstream economists are becoming increasingly interested in inequality and climate change. Between 2000 and 2020–2021, the share of economists who agreed that rising inequality in America must be a concern increased from 68 percent to 86 percent (*Economist* 2022a: 56). “Another area of consensus is concern with climate change and the use of appropriate policy tools to address climate change” (Geide-Stevenson and Perez 2021: 1).

With this “new consensus” (*Economist* 2022a: 56), several questions remain. First, how do economists theorize ecological crises? Second, in what ways do economists propose to respond? Third, can mainstream theories, practices, and policies address ecological imperialism? Summers's statement was defended by some economists (Johnson

et al. 2007). The actions of the Environmental Protection Agency have been studied (Boyce 2022). There is research on how economists use marketization to address environmental problems (Stilwell 2011). However, those studies were neither designed to address questions about the new consensus on ecological crises and inequality nor framed to probe how economists understand inequality or the ecological crises.

For detailed responses, I examine three major recent contributions by economists (Chancel 2020; Kahn 2021; Thaler and Sunstein 2021). Drawing on reformist neoclassical macroeconomics, core neoclassical microeconomics, and behavioral economics, respectively, these major studies have been widely and positively reviewed, often by specialists who strongly recommend the books (Naik 2021; Gardiner 2021; van der Heijden 2021). I use books as case studies, an approach to scholarship that is widely utilized in economics (Endres et al. 2020). Together, the books I engage show that mainstream economics has developed extensive theories of inequality and unsustainability. However, their theories are highly problematic and their policy suggestions are contestable.

Mainstream theories of causation remain largely neoclassical. Similarly, the bases for repairing the harms are grounded in neoclassical reasoning, while the mechanisms for restoration are still mainstream. Fundamentally, while they discuss inequality in income and wealth, they say nothing substantial about social stratification, imperialism, or ecological imperialism. At the heart of all three phenomena is rent theft, a cornerstone of the world ecological crises. Therefore, while mainstream economists certainly have theories of inequality and unsustainability and some policy tools based on light statist reforms and market and behavioral changes, they have neither transformative theories of social stratification and global ecocide nor any insights on ecological imperialism generally, even though ecological imperialism has been at the heart of ecological crises, both historically and currently.

Ecological imperialism, which is fundamentally about how historical and contemporary institutional inequalities make weaker groups susceptible to socio-ecological harms, demands urgent attention. The biological expansion of the Global North historically depopulated the Global South and supported the economic and political processes of

imperialism generally (Crosby 1986; Weiskel 1987; Hody 1991; Foster and Clark 2004). These intersections of economic and ecological imperialism created the political-economic environment for today's socio-ecological problems, including the haze crises and the colonization of oil palm (Varkkey 2016). These intersections also reflect modern interconnections between the economy, society, and the environment. The overall effect of their disconnect from real-world ecological crises is that mainstream economics and conventional policies hide ecological imperialism behind veils of rhetoric, prices, and behaviors. For an ecologically just social world, we are better off turning to other avenues for inspiration and action.

To flesh out this argument, the rest of the article is divided into four sections. *Rhetoric* examines the ways in which reformist mainstream economics approaches the question of sustainability and inequality, while *Adapting* and *Nudging* analyze core principles of neoclassical and behavioral economics of climate change adaptation, respectively. *Limiting* shows that, whether through economic reformism, prices, or nudges, mainstream economics is fundamentally incapable of providing insights about ecological imperialism.

Rhetoric

Thomas Piketty, arguably the most visible exponent of the thesis that global inequalities have not only become the face, but also a portrait, of global society (Piketty 2014, 2019), has endorsed Lucas Chancel's (2020) recent study of inequality and the environment. Chancel, Piketty's mentee, is co-director of the World Inequality Lab at the Paris School of Economics, and an associate researcher at the Institute for Sustainable Development and International Relations. According to Piketty, Chancel is undoubtedly someone to read on the links between rising inequalities in the world and rising climatic temperatures. These twin crises, according to Chancel (2020), should be known and called *Unsustainable Inequalities*. Inequality is rising, Chancel (2020) argues, not just in terms of income, but also with respect to wealth. Unlike public wealth, which is decreasing, private wealth is soaring (Chancel 2020: 46–47, Fig. 2.4). This inequality is worrying because, for example, the poor might copy

the unsustainable ways of life of the rich. Chancel's 2020 work has been carefully reviewed by G. D. Naik (2021), but to demonstrate his core arguments, I summarize the book's key points.

According to Chancel (2020), there are five fundamental ways in which inequalities and unsustainability can be manifested. These are as follows: a) uneven accessibility to environmental goods such as potable water; b) disproportionate experience of environmental harms by the poor; c) unequal contribution of the poor and weak to global environmental degradation; d) overexposure of the poor to unintended environmental risks from policy processes; and e) uneven decision-making powers in regard to natural resources.

Most environmental economists follow the “environmental Kuznets curve” thesis and contend that more growth is bad for the environment in the short run. But, with time, the effect of growth will trickle down to the poor, eliminate environmental problems, and heal the planet. Chancel, however, contends that more growth is not the answer. Instead, addressing poverty would make the poor equally guilty of producing “environmental bads.”

In fact, income redistribution—other things being equal—tends to increase total emissions. That said, absolutely nothing prevents governments from acting in such a way that other things will not be equal. (Chancel 2020: 112)

This critique is similar to more critical “limits to growth” and “degrowth” arguments, but Chancel's proposed solutions are fairly mainstream.

Markets lead the way. Global taxes must be placed on environmental wrongs. Subsidies must be removed from environmental bads and, to cater to the poor, cash transfers could be given to them so that they could exercise their free choice on what to buy. Presumably, the poor will not overuse their money for environmental bads. The United Nations also has a part to play, says Chancel (2020). It is quite acceptable to maintain the current Kyoto Protocol, namely, “common but differentiated responsibilities” (Article 10) for climate payments and impacts. But all poorer nations should not be exempt. Even in countries facing severe weather conditions but where the reason for poverty is another region, the wealthy individuals in these countries

and their environmental footprint must be paid for in the market. The need for a socio-ecological state is justified for these reasons: to offer cash transfers, to impose carbon taxes, to remove subsidies, and to selectively bracket out rich Global South residents who must be treated in the same way as the rich elsewhere.

Where there is political polarization, Chancel continues, agreement on environmental taxes is difficult to reach. This was the case with Trump's America (Chancel 2020: 32–35). Ostrom's work is then presented as proof that, where there is agreement, environmental resources are much better governed (Chancel 2020: 34). A crucial point is that not all inequality-reducing strategies have anything to do with environmental problems, so the causes of inequality need to be discussed. Chancel (2020: 52) probes a wide range of posited causes, such as globalization and technological development, but he finds most of them unsatisfactory as explanations:

On balance, then, trade globalization probably explains at least part of the general tendency for economic inequality to increase, particularly through international competition among low-wage workers, but it does not explain the considerable divergence in trajectories between countries.

Technology is also said to have limited explanatory power. Chancel (2020: 53) gives the reduction of the power of the social state much more explanatory weight:

The weakening of the social state over the past thirty years (with regard to tax policies, workers' protections, public service, and so on) is a decisive factor in explaining the increase in inequalities of income and wealth.

These inequalities are manifest in energy issues (Chancel 2020: 57–58), such as the ways in which poorer groups shoulder the rising cost of energy. The responsibility for pollution is also carefully analyzed by Chancel (2020). For him, human beings cause climate change, but not equally. Climate pollution is caused by our generation and affects the next generation. Poorer nations and regions today do not have the same level of responsibility for the climate problem as the richer countries (Chancel 2020: Table 5.1). As a result, the Kyoto Protocol principle of “common but differentiated responsibilities” (Article 10)

implies that the poorer world is not required to make any adjustments. In the Paris Agreement, too, only the richer world is required to contribute to the \$100 billion fund for adaptation. For Chancel (2020: 96–97), because of differential CO₂ emissions, individualizing responsibility even more is preferred:

In Brazil, the bottom 50 percent emit about 1.6 metric tons of CO₂ compared to about 80 metric tons for the top 1 percent. Here, and in other emerging countries, whereas a large part of the population is responsible for low to very low levels of pollution, the energy consumption of an economic elite, at least among the top 1 percent, approaches that of rich Europeans and North Americans.

According to Chancel (2020), there is a need for an even more granular analysis. The need is not simply to tax the fuel of workers while exempting “fuel for the rich,” namely, aviation fuel (Chancel 2020: 129). Environmental and social justice movements can arise in the face of energy price increases, Chancel argues, pointing to the Yellow Vests movement in France. Chancel, however, does not analyze French ecological imperialism, such as how France continues to extract rents from its former colonies through its control of the CFA franc (Pigeaud and Sylla 2021). How the social costs of the French state’s nuclear program are borne by “former” French colonies (Shrader-Frechette 2011) is not discussed either. Instead, Chancel (2020: 124) praises the French nuclear program.

The book also offers a broad range of proposals, from public transportation and changing social norms to energy-efficient housing, but nowhere is there an attempt to curtail structural “Veblen effects.” Even its line of analysis on redistribution argues that it will increase the likelihood of sustainability becoming a problem of the poor, who, Chancel argues, create environmental problems by copying the rich.

Chancel’s (2020) study is clearly well meaning, a point echoed in Naik (2021). What it posits, however, is not a radical break from orthodoxy, and the appeal to social justice is rhetorical. Chancel makes a humanist case for addressing “unsustainable inequalities” through a weak conception of social injustice that, while discussing income and wealth inequalities, gives no place to spatial injustice, rent theft,

global fossil fuel questions, or historical socioeconomic and ecological wrongs, and certainly contains no analysis of ecological imperialism. Chancel's humanism is built on a rich body of mainstream and orthodox economics of adaptation, and hence the nature of this mainstream theorizing needs to be carefully outlined.

Adapting

Perhaps the world's most visible exponent of the economics of adapting is Matthew Kahn, Provost Professor of Economics and Spatial Sciences at the University of Southern California, and a student of Nobel Laureate Gary Becker. A well-known advocate of market-based sustainability, Kahn's (1993) Ph.D. dissertation on environmental economics provides the outlines of what became a distinctive urban economics approach to questions about sustainability. Many other major studies followed, including *Climatopolis* (Kahn 2010). Kahn's latest book, *Adapting to Climate Change* (2021), was well received and cements his leadership in the free-market approach to the problem of climate change. The journal *Foreign Affairs* published a brief review, concluding that Kahn shows how to be a climate optimist without being a climate skeptic (Eichengreen 2021). Kevin Gardiner (2021) has offered a longer critical review, which requires elaboration.

Kahn acknowledges adaptation as a naturalized likely response and, hence, advocates a particular *economics of adaptation*. Kahn's (2021) focus is on how individuals need to make different choices in order to cope with the reality of climate change. With adversity, the book begins, human ingenuity is unleashed. Instead of mitigating unsustainability, Kahn (2021) argues that adaptation is more effective. Looking at trends in fossil fuel production over the years, the sheer scale of emissions, and the process by which the enrichment of the poor in what he calls "developing" countries will exacerbate environmental crises, he is convinced that reversing that path to solve the climate question is a lost cause. Adaptation, on the other hand, is a vibrant path, and popular support for environmentalism, even in the United States, is soaring. People are willing and able to make lifestyle changes.

Even so, Kahn (2021) points out, workers are reliant on oil and gas, and many investors rely on the fossil fuel industry. Entire communities make a living from coal. Increasing the price of this major energy source has led to popular protests. Poorer nations prioritize growth rather than capping emissions:

Thus, we need to understand how people, firms, and government interact through markets to reduce the risk posed by climate change. ... This micro-economic perspective to studying climate change adaptation emphasizes the role that markets and human capital play in coping with new risks. (Kahn 2021: 5)

Better education about the nature of the problem, buoyed by the rise of big data, is emphasized, as is the creation and facilitation of markets to enable individuals to adapt better. This hyper individualism and unfettered agency are celebrated throughout the book because they are the fundamentals of adaptation economics. According to Kahn (2021: 6):

Whereas macroeconomists often focus on the so-called average person, microeconomists are explicitly interested in distributional effects. We focus on how different segments of the population cope with emerging threats. At a time of growing concern about income inequality, it is essential to understand how different groups cope with new risks.

Whereas William Nordhaus (2018, 2020) contends that the climate effect is constant and has a serious economic damage function that necessitates a macroeconomic environmental tax, Kahn takes a different path. Kahn (2021: 6–7) accepts Nordhaus’s “damage equation,” looking at climate change as a cause of economic damage. While Nordhaus assumes that climate change has similar effects, Kahn contends that the effects are not the same. For places that have learnt to adapt, the effects are lessening over time:

Even though we are confronting greater overall levels of greenhouse gases in the atmosphere, people, firms, and governments are becoming better and better at adapting to the challenge that we have unleashed because of the evolving microeconomy. (Kahn 2021: 7)

Cities, for example, are getting better at adaptation due to human capital accumulation there and the competition for talent: “Over time, we have an ever-increasing capacity to adapt to more climate effects. Although it can be costly to adapt to the new risks, these costs are continually declining over time. (Kahn 2021: 8)

So, as the knowledge that more air conditioning can address the problem of rising outside temperatures, and the technology for making these air conditioners improves, more and more people will demand them. The poor, too, can afford them, as prices fall with market competition and demand. People, in essence, are adapting and the effects of climate are not so immutable. The general principle for the analysis is clearly stated: People choose where they live, how they live, what labor markets they participate in, and what assets and products they buy. Such individuals have strong incentives to consider how these choices affect their family’s health and safety. As the risk of climate change becomes salient, households are more likely to take actions to protect themselves, and market product suppliers will find profitable opportunities delivering such products. (Kahn 2021: 16–17)

In short, for Kahn (2021), there is a huge risk ahead or around us, but, as humans, we are becoming increasingly adept at learning to solve and adapt to the risk of climate change. Unlike Chancel, who appeals to markets but is not so certain about what to argue, hovering somewhere between mainstream and radicals, Kahn is decisive: “This book focuses on how capitalism helps us to adapt to the climate change challenge through facilitating behavioral change” (Kahn 2021: 34).

The Microeconomics of Climate Change

Engaging the details of Kahn’s (2021) microeconomics approach to climate change is necessary to provide a context for assessment. This approach considers climate science. Its predictive models are described and appreciated but are also questioned. This, however, is not climate denialism; far from it. Kahn (2021) accepts the forecasts but only as a worst-case scenario. He points out that not only do such projections not acknowledge the uncertainty of the variables used, but the predictions also overlook the great abilities individuals have to adapt, the power of technology, and the place of human

capital. All these factors are usually poorly considered in climate prediction science. However, such insights can serve as a guide for what could happen and, hence, act as a spur to take action on adaptation (Kahn 2021: 24–25).

The ability to pay and free choice are logical extensions of the argument. The former enables the latter, which, in turn, facilitates adaptation to climate risks. Both the ability to pay and free choice are greatly enhanced by human capital, which boosts the prospects of jobs in less-climate-risky areas and sectors. In China, for example, human capital improves the choices and chances to work indoors and, hence, limits the risk of exposure to atmospheric pollution. The ability to pay greatly enables urban residents to buy masks and air filters. The state of technology sets the stage of course. So, through the buying and selling of masks and air filters on Taobao (a Chinese version of Amazon), it is possible to adapt by buying the right protection. As noted by Kahn (2021: 45): “The heart of the adaptation challenge from the perspective of microeconomics is to understand how different people cope with the same challenges.” These diverse individual responses can drive larger changes, including technological innovation. “Kentucky Fried Chicken’s effort to introduce a vegetarian-based food product that tastes just like fried chicken offers a key example” (Kahn 2021: 56). In that case, as many individuals showed an interest in sampling the technologically created taste of chicken, a for-profit company invested in the product. Thus, individuals and households can taste more chicken while having less real chicken, whose cost or cost of access could increase with climate change. Diets could also, accordingly, change. Both numbers and money are, therefore, clearly important in this alternative.

But how do mainstream economists propose to address the poverty problem? One strategy is to support universal basic income, or UBI (Kahn 2021: 61), but only on two grounds. First, UBI must indeed be universal, so that it does not create a situation in which people only migrate to areas where it is applied (Kahn 2021: 66). Crucially, the UBI must also be designed in such a way that it incentivizes work. Second, other strategies include education and

experience: “Acquiring human capital is the key to escaping poverty” (Kahn 2021: 61). A third strategy, particularly for those living in the so-called developing world, is a spatial solution. Kahn (2021) proposes migrating from the country to the city. For island states and territories at risk, where no location solution is in sight, regional or global migration is suggested (Kahn 2021: 73–74). Improving transport infrastructure and networks, in this case, could enable the process, for example, by reducing transport costs. The point is not only that people physically escape climate change risks, but that members of the risk group could migrate and send remittances to increase the purchasing power and adaptation power of their households and families. For example, migration could involve some costs but, again, individual innovation and adaptation in markets can help to address the problem.

This analysis raises questions about the role of the state. Mainstream economists recognize the importance of the state. However, politicians, whom they view as selfish, and hence as acting in their own self-interest of getting reelected, cannot lead positive social change. Three reasons are given. First, elected state officials do not invest in long-term projects that will not help their reelection, or that will benefit another competitor, or that are not demanded by voters. Second, state involvement may actually destroy the market, or kill individual incentives or the drive to adapt. For example, people may no longer take precautions in walking in a public park at night because they think the state has invested more in policing the park (Kahn 2021: 85). Third, states have limited budgets but do not want to raise taxes because of self-interest, concerns about losing residents to other states, or a combination of these and other factors. Therefore, the key is to innovate a new big-data-informed public management system of governance.

To enable adaptation, the state is needed, but primarily as a creator and facilitator of markets. Rules about zoning must change, and state insurance must be eliminated. Traffic rules need amendments to ensure speed in the city, so that, wherever people live, they can still commute to work. Climate risks simply mean people can switch locations and when this happens, spaces will be needed for moving at top speed over long distances. The use of congestion charges is highly recommended,

as are parking tolls and the like. To ensure that such policies are implemented, they are best initiated just after a climate-related natural disaster. During this time, societal checks and balances are suspended, the focus being on addressing the present problem. That is when markets can best and most effectively be created and fixed. As Kahn points out, “The ... government can play a key role as a market maker” (2021: 196).

In this market, zoning and certification rules support more climate-proof housing supply in safer areas, while housing vouchers could be used to support the poor who face the risks of not being able to move. The same market approach would also incentivize real estate developers to build resilient properties. Costs are involved in renting (for the tenants, the possibility of rental increases and the lack of community and, for the owner of the rental property, rent-control laws that might curtail pricing strategies), but the overall benefits of renting outweigh the costs. In any case, landlords have great power to address these problems.

Just as the owner of a shopping mall seeks to maximize the positive synergies across shops at the mall, so the owner of a large number of nearby rental properties can encourage a local community to flourish through events such as picnics and block barbeques. (Kahn 2021: 174)

This set of examples, says Kahn, is not trivial: It actually dovetails with this book’s main theme. In capitalism, when decision makers anticipate an emerging challenge, there are always strategies available to mitigate the challenge (Kahn 2021: 174–175).

Within this framework, international trade is praised for enabling adaptation and widening the market for choices. International and internal migration are commended for facilitating safe havens when temperatures rise. So, migration, while it has its challenges, needs to be supported on account of the wide variety of advantages, including higher earnings for migrants and human capital increases for destination nations. Indeed, even for those left behind by migration, not only remittances, but also departures, create forces of supply and demand that enable incomes in the origin spaces to increase. The short-term stress of migrants on facilities is overcome by the benefits of migration. Kahn (2021: 226–229) argues that markets for passports

need to be created so that only the more financially able and capable can migrate. Having paid so much to migrate, these individuals will be incentivized to work hard and to send remittances back to their families, which, in turn, can invest in protecting themselves against climate risks. For those in destination countries who fear that they may lose out to migrants, partnership programs between migrants and residents could be created. In short, according to Kahn, globalization is good for adaptation.

Shaky Foundations

Overall, Kahn admits that there is a climate problem: “Climate change poses challenges to our quality of life, health, comfort, and productivity” (Kahn 2021: 234). However, he contends that, in general, a) the risks are exaggerated, b) the existing approaches to mitigation are not compelling, and c) the most effective way is adaptation. *Adapting to Climate Change* is about “how market forces help us to adapt to climate change risk and thus protect our standard of living” (Kahn 2021: 234–235). These forces are greatly buoyed by increasing human capital and technological advancement and by the ability of human beings to obtain both human capital and technological advancement. So, if behavioral economists point to irrational behavior, Kahn (2021: 236) counters that individuals have the ability to take steps to make such behavior rational:

I have discussed the importance of self-awareness. If people are aware that they suffer from the biases that the behavioral economists have noted, then there are many strategies that they can engage in to limit their risk of exposure.

Kahn argues that various state practices inhibit individual adaptation and, hence, need to be removed in favor of an increasing number of markets and market-creating practices, such as reducing information asymmetry through big data and investment in education to empower individuals to make free choices to adapt. Recognizing that a) climate change “will increase inequality” and that b) the poor have fewer opportunities to adapt, Kahn reiterates his message of reducing poverty and inequality through markets: there is room for “a safety net”

but it must “not distort the incentive to work and save” (Kahn 2021: 241–242). This minimalist approach is justified on several grounds, including existing evidence that, using technology, few poor people have died from natural disasters.

Clearly, this microeconomic approach to climate science rejects degrowth, which Kahn (2021: 1, 235–236) implies is similar to the bet between ecologist Paul Ehrlich and economist Julian Simon. While the former pointed to the limits of our planet, the latter pointed to how markets and technology can make the system correct itself. Kahn (2021: 235–237) implies that his book is “The Bet Round II.” Kahn (2021: 235) points to his differences from many apocalyptic books, such as Jared Diamond’s *Collapse*: “The ongoing climate change adaptation challenge poses a similar high stakes contest.” Put broadly, those claiming limits are wrong, not because the problems they describe do not exist, but because individuals can save the earth through adaptation.

The microeconomic approach is also different from, and critical of, behavioral economists. As Kahn (2021: 10) points out: “The behavioral economics school of thought is more pessimistic about our ability to adapt to new risks.” Elsewhere, Kahn argues that behavioral economists may have some advantage over neoclassical economists in the short run, but that in the long run, neoclassical economists are right. That is evidently the case, for example, when the price of real estate can fall just after an area experiences a flood but, over time, the price rises again. Indeed, he discusses studies showing that rents remain high for areas susceptible to future climate risks, but the value of the properties are lower because that reflects future risk. Kahn (2021: 121–122) states:

This example highlights how behavioral economists and neoclassical economists debate over what model of our behavior best explains recent facts. Behavioral economists would have a cleaner test of their salience hypothesis if all other factors remained constant over time. Unlike experimental scientists, we cannot run this experiment. With the observational data that we can collect, economists often face the identification challenge that multiple theories can explain the same facts we document. Because climate change will unleash new shocks whose severity we have not experienced before, it offers a high-stakes laboratory for testing behavioral economics ideas.

Styling himself and other adaptation economists as optimists, Kahn (2021: 236) writes about their commonalities, in spite of their differences:

An important challenge for adaptation optimists is to recognize the behavioral economist's critique. This school of thought argues that many of us are not properly processing the new signals arriving about Mother Nature's dynamics. In this polarized news era, our inability to discern true signals of emerging risks leaves us unprepared because of the cacophony of different voices all claiming to be experts. At the same time, there is a rising distrust of experts who appear to have a political slant. Throughout this book, I have discussed the importance of self-awareness.

Whether self-awareness can address the concerns of behavioral economists requires a more careful analysis of nudging economics.

Nudging

Richard Thaler and Cass Sunstein are by far the most visible proponents of behavioral economic approaches to climate change. The final edition of Thaler and Sunstein (2021) pays substantial attention to this issue. Hence, an ecological review is warranted, which is quite distinct from Jeroen van der Heijden's (2021) review. I emphasize only the book's ecological aspects within the wider context of behavioral economics.

From the outset, *Nudge: The Final Edition* challenges neoclassical economists' skepticism about behavioral economics:

We believe that their skepticism is based on a false assumption and two misconceptions. The false assumption is that almost all people, almost all the time, make choices that are in their best interest or at the very least are better than the choices that would be made by someone else. (Thaler and Sunstein 2021: 13)

This, according to the authors, is not accurate. Unlike *homo economicus*, who can make mistakes but supposedly never makes biased and systematic mistakes, real-world human beings usually make biased and systematic mistakes, not simply random mistakes, which explains why people need help to make choices in their own interest. "The first misconception is that it is possible to avoid influencing people's choices" (Thaler and Sunstein 2021: 14). Choices are influenced

by a variety of factors and forces most of the time, and even unintended designs influence choices. “The second misconception is that paternalism always involves coercion” (Thaler and Sunstein 2021: 15). Again, they point out that this is wrong. A GPS device can be paternalistic, but not coercive. Likewise, arranging healthy foods on shelves that are at eye level with the intention of nudging consumers to make healthy choices is paternalistic, but not coercive (Thaler and Sunstein 2021: 12–16).

The economics of nudging is about helping individuals to choose what is in their best interest, as judged by themselves, by nudging—not coercing—them. Grounded in the idea of libertarian paternalism, this economics combines the best in the seemingly contradictory space of either libertarianism or paternalism. Nudging economics is libertarian because it preserves the Friedman notion of “the freedom to choose” (Thaler and Sunstein 2021: 16). This approach is paternalistic because, even if it is non-coercive and seeks to affirm what an individual—not a bureaucrat—will choose when armed with appropriate information, it is still an external influence on choice making. “When no coercion is involved, we think that some types of paternalism should be acceptable even to those who most embrace freedom of choice” (Thaler and Sunstein 2021: 15). “Libertarian paternalism is a relatively weak, soft, and nonintrusive type of paternalism, because choices are not blocked, fenced off, or significantly burdened” (Thaler and Sunstein 2021: 7).

In this economics, those who help individuals make choices that will benefit the choice makers themselves are like architects whose decisions about where to put what in a building influences interactions. Accordingly, these economic architects are called “choice architects” (Thaler and Sunstein 2021: 3–5), and nudging can take the form, for example, of merely painting lines on the floor to influence physical distancing during the COVID-19 pandemic. Or choice architects could be those who arrange items on shelves in a grocery shop. Actual architects are, of course, also choice architects, and economists and architects can team up as choice architects. Aad Kieboom’s example at Schiphol Airport, described in Thaler and Sunstein’s book, captures the spirit:

In many cases, the power of ... small details comes from focusing people's attention in a particular direction. A wonderful example of this principle comes from, of all places, the men's toilets at Schiphol Airport in Amsterdam. At one point, the authorities etched the image of a black housefly into each urinal. It seems that men often do not pay much attention to where they aim, which can create a bit of a mess, but if they see a target, attention and therefore accuracy are much increased. (Thaler and Sunstein 2021: 4–5)

"If a man sees a fly, he aims at it" (2021: 5) is how Kieboom is reported to have described the success of this nudge.

For behavioral economists, humans are not simply *Homo economicus*, but also *Homo sapiens* (real-world human beings). So, they may respond to incentives, such as price reductions, but they also respond to small changes that do not affect incentives. The best solution is to combine these two, not to denounce nudges:

By properly deploying both incentives and nudges, we can improve our ability to improve people's lives, and help solve many of society's major problems. And we can do so while still insisting on everyone's freedom to choose. (Thaler and Sunstein 2021: 12)

What they seek is a bipartisan approach to help people make the choice that helps them the most as judged by themselves (Thaler and Sunstein 2021: 18–20). From this perspective, both public and private entities can create nudges to achieve their mandates, while "helping to reduce air pollution and the emission of greenhouse gas" (Thaler and Sunstein 2021: 8).

Making Homo Sapiens Homo Economicus to Help Protect the Environment

Biases and blunders inhibit human beings from being *Homo economicus*. Thaler and Sunstein (2021: 25) "are not saying that people are irrational. ... Rather, the problem is that we are fallible and life is hard." Choices systematically fail due to biases and blunders, ranging from rules of thumb, anchoring, and availability biases to blunders about representativeness, optimism and overconfidence, attachment to things and how they shape how we value them, the status quo, and framing. To illustrate the point, consider framing, which is a bias arising from how phenomena are described. Environmental

campaign messages matter in terms of both form and content, but the former can be particularly powerful. a) “If you use energy conservation methods, you will save \$350 per year” is not as effective as b) “If you do not use energy conservation methods, you will lose \$350 per year” (Thaler and Sunstein 2021: 40). Although these statements are similar in content, as Thaler and Sunstein (2021: 40) point out, “b” elicits far more change in environmental behavior. Similarly, faced with the statement that “of one hundred patients who have this operation, ten are dead after five years” or the statement “ninety of one hundred are alive,” more people respond positively to the latter when facing an operation than to the former (Thaler and Sunstein 2021: 39). “The bottom line ... is that people are nudgeable. Their choices, even in life’s most important decisions, are influenced in ways that would not be anticipated in a standard economic framework” (Thaler and Sunstein 2021: 46).

A behavioral solution is available. When individuals are herded, the herd provides both information and peer pressure on what, how, why, and where to act. These herds come in various forms, including identities like gender, political ideologies, city residence, and roommates. Providing information about these identities and what they do, think, say, or support, therefore, can be a nudge to others like them. Similarly, a guest can be nudged to fall in line with a notice like “Join your fellow guests in helping to save the environment. Almost 75 percent of guests ... help by using their towels more than once” (Thaler and Sunstein 2021: 85). For those who propose to use taxes to address environmental problems, tailoring the message to individuals to nudge them toward groupthink is effective. “Nine out of ten taxpayers in Manchester pay on time” (Thaler and Sunstein 2021: 84) works effectively, as does “more than 90 percent of Minnesotans already complied in full with their obligations under the tax law” (Thaler and Sunstein 2021: 83). It seems that such nudging must also be done with confidence, persistence, and consistency. Influencing and influencers need to have these features. “The clear lesson here is that consistent and unwavering people, in the private or public sector, can move groups and practices in their preferred direction” (Thaler and Sunstein 2021: 70). One example of this is when Texas had a litter problem, authorities called

upon the Dallas Cowboys football players, tough-speaking Texans, to loudly shout “Don’t mess with Texas” in an anti-litter advertisement, combining identity, clarity, and confidence. It is also desirable to tweak messages to highlight emerging norms. “Telling people that *a new norm is emerging*—say, in the domain of sustainability—can create a self-fulfilling prophecy” (emphasis in original, Thaler and Sunstein 2021: 6, 7, 65).

These examples show the criteria for a good nudge: first, it does no harm to the individual nudged and, second, the nudge is in the self-interest of the individual being nudged (Thaler and Sunstein 2021: 91). Nudges also need to be consistent with the designed default action. Either to facilitate the line of least resistance, or the pathway of least effort, the nudge must be intuitive. The nudge must also be “fun.” None of this is to displace the time-honored principles of economic incentives: price, demand, and supply. “This is as good a time as any to state for the record that we believe in supply and demand. ... So, choice architects must think about incentives when they design a system” (Thaler and Sunstein 2021: 125). Thus, it seems behavioral economics seeks to elaborate and expand the tools available to economists, not to undermine economics. That said, Thaler and Sunstein (2021: 127) point out that typical taxes and tax breaks proposed by economists usually fail.

It is common for substance to be preferred to form, but behavioral economists urge caution. Choices matter. But, contrary to conventional wisdom, the form of a choice is even more crucial. Measurement, for example, is, of course, important, but how it is reported has significant effects on behavior: “In the United States, consumers see how far you go on a unit of fuel, while in Europe they see how much fuel you need to go a particular distance.” The European approach nudges consumers to be more conscious of their environmental footprint: “so good choice architects not only have to pick a standardized way to measure but also need to think carefully about how to report the findings” (Thaler and Sunstein 2021: 139). Choices about energy providers must be increased, but data on usage of energy must be in forms understandable to users to nudge them in sustainable ways, for example, through comparison with others and with trends. All these, the authors argue, could be called “smart disclosure.”

“Make it Easy” is, “perhaps, the most basic principle of good choice architecture” (Thaler and Sunstein 2021: 51) and “Make it Difficult” is the fundamental principle of *sludge*, the opposite of *nudge*. Even when you want to *splurge* (Thaler and Sunstein 2021: 155), you can be sludged out. Governments are often accused of “red tapism” (a form of sludge), but even airline companies, electronics firms, and universities have been involved in sludging, defined formally as “any aspect of choice architecture consisting of friction that makes it harder for people to obtain an outcome that will make them better off (by their own lights)” (Thaler and Sunstein 2021: 153). So, sludging is “the dark side of choice architecture” (Thaler and Sunstein, 2021: 152). The case Thaler and Sunstein argue is to remove sludge and to nudge the status quo gently.

With these ideas in mind, how should we address the existential problems of the planet? The environmental challenge is equated with climate change, but its seriousness is clearly acknowledged: “the world faces a crisis known as climate change” (Thaler and Sunstein 2021: 281). However, their preference, having stated the problem and its dire consequences, is to go for adaptation, not mitigation. The problem arises from Hardin’s (1968) “tragedy of the commons” and the wider problem, noted by Paul Samuelson, of free-riding (Thaler and Sunstein 2021: 286–287). They dismiss claims about who has done what as a mere case of a tragedy of the commons and the international effort to resolving such discussion as “coercion,” again appealing to the problem of the commons and the free-riding dilemma.

We can spend the rest of our days on earth arguing about what would be fair in this situation, but it is safe to say that achieving an agreement on that question is difficult. The philosophical issues are extremely complicated. ... Just observe a couple dividing up the possessions during a divorce if you want to see this behavior up close. In the area of climate change, self-serving judgments about what is fair can be found on all sides in international negotiations, and they have been a serious obstacle to progress. (Thaler and Sunstein 2021: 391)

Their solution is the standard economic response: internalize the externalities through creating markets in nature. Cap and trade,

green taxes, and green clubs are advocated, along with options for lifestyle changes to adapt to climate change. But they recognize that, in many cases, even if such green options are available, people do not take advantage of what is offered. There is a paradox: green exists, but brown continues (Thaler and Sunstein 2021: 299–300). Hence, nudging is clearly important. Make the default green, but be transparent about what is being done: practice green nudging and be willing to disclose more and more information about emissions. Thus, even if nudging alone is not the answer and incentives are also needed, the former is definitely a necessary companion of the latter. This is their “all tools on deck” approach to climate change (Thaler and Sunstein 2021: 301).

Limiting

But are these steps sufficient? Thaler and Sunstein (2021) step back to look at the many objections to their arguments and how they stack up against real-world evidence. They have three responses: first, they have learnt from some of the criticisms of their work. Second, many of the objections are “slippery slopes” or fear mongering about rare events (Thaler and Sunstein 2021: 315–318). Third, they address some of the objections explicitly. Three criticisms of Thaler and Sunstein’s work stand out: 1) Education or nudging: Should people not simply be allowed to learn from their mistakes? Thaler and Sunstein’s response is that it is not one or the other; nudging complements education. 2) What about the fear that nudging is deceitful and manipulative? They contend it is not and they point to the many instances in the book that show that they prefer transparent nudges, not subliminal and manipulative nudges. 3) Again, there is the concern by libertarians that, in the beginning, “it’s nudge, then it’s shove, then it’s shoot” (Thaler and Sunstein 2021: 316) or that the argument gets stuck on nudge, not wider transformative policies that can be used by paternalists. Their response is that nudge and incentives go hand in hand, along with regulations, especially when third parties are specifically harmed: “Murder, rape, assault, and theft are criminal offenses, properly met with coercion. Some problems, such as pollution, arise because people are imposing harms on others. As we have emphasized, nudges are not an

adequate approach to such problems. To be sure, they might help. You can impose taxes on gasoline and encourage people, through nudges, to buy fuel-efficient cars. There are plenty of externality-reducing nudges” (Thaler and Sunstein 2021: 328–329). As they note in closing, nudging has become a key way of seeing the world. Nudging the world for good “is gradually becoming a description of countless reforms being developed and implemented all over the globe” (Thaler and Sunstein 2021: 339). That said, as libertarian paternalists, they “favor freedom of choice. ... That presumption certainly protects your right to disagree with us” (Thaler and Sunstein 2021: 334).

Clearly, behavioral economists are not seeking to be rebels or radicals. They contend that individuals are usually *not* rational, as Kahn correctly points out. However, behavioral economists also note that they themselves are trying to make individuals rational by nudging them to *become* rational, while extolling the virtues of prices and markets: “As we have emphasized, the most important step in dealing with environmental problems is getting the prices (that is, incentives) right” (Thaler and Sunstein 2021: 301). In short, behavioral economists are fundamentally similar in what they deem should be the standard individual. The nudgers are quite convincing and many of their insights can be very powerful. If people are herded by majority views (Thaler and Sunstein 2021: 67–68), then more minorities need to be included institutionally (not just by nudging) on decision-making committees. Adding one or two “quota” appointees does little or nothing.

EPIC Solutions?

How can price incentives and behavior be coupled more strongly? Eric Lonergan and Corinne Sawers (2022) argue that governments must simply buy environmental goods for individuals. Prices and nudges are too slow, too indirect. Prices are also sometimes ineffective. Take the case of environmental goods and bads whose supply and demand are price inelastic and, hence, do not respond to price incentives. Similar comments apply to the so-called conditions of supply/demand that change not so much because of price but

due to other forces. To overcome these problems, Lonergan and Sawers (2022) propose simply paying people to use environmental goods or buying those goods for them. This strategy is based on their concept of “extreme positive incentives for change” (EPICs). EPICs is the approach of an economist (Lonergan) and a climate scientist (Sawers) to supercharge net zero. Is this an “EPIC challenge?” *The Economist* (2022b: 69) asks, contending that it must be part of a general solution of markets. Certainly, new institutional economists (Bellanger et al. 2021) contend that the conditions for markets to work, including creating environmental markets, buoyed by the institution of private property markets, need to be fully provided as a comprehensive solution.

Yet, other questions and concerns are more fundamental. Is it *cumulative change*, an EPIC change, or an instant nudge that matters? There is a small number of cases in which the nudge economists seem to fall into the group of cumulative economists:

Every time someone shared “I am gay,” or “I am a lesbian,” or “I am bisexual,” a small nudge was put in place. Once people began revealing their sexual orientation to friends and family, the floodgates started to open, perhaps especially when their family members were politicians who were members of a party opposed to this change. (Thaler and Sunstein 2021: 87)

Yet, this contention is relatively minor compared to instant nudges. Moreover, it is very much at the local level and global *cumulative* forces are not consistently analyzed. For instance, for many poorer nations, such changes are also cumulatively imposed by international organizations as well as driven by local activists. Is it correlation or causation? For example, if the U.S. Supreme Court changes its position on gay rights, how can we say that it did so because of more gays arguing before the Supreme Court (Thaler and Sunstein 2021: 87–88), when, in fact, changes in the composition of the Supreme Court were the real reason?

What about the situation in which we are nudged in different directions? For every nudge, there are multiple counter nudges. For example, on abortion, the U.S. Supreme Court is nudged both ways. The claim is interesting that federal judges sitting with opponents in three-judge panels switch over to their opponents’ side (Thaler and

Sunstein 2021: 67), but is it consistently the case? It seems that this is not borne out by the experience of even the U.S. Supreme Court, where there is considerable consistency regardless of the panel's composition when issues of ideology need to be decided.

So, why keep nudging instead of changing the institutions? In what ways can institutions mold nudges? Rules provide the context and the nudges. Practices and economic interests shape and transform behavior, which no doubt changes and can be changed, but even below the structures, deep beneath them, are institutions. Consider Thaler and Sunstein's example: "The bottom line is that Humans are easily nudged by other Humans. Why? One reason is that we like to conform" (Thaler and Sunstein 2021: 67). But do we *like to conform* or do we *learn* to conform? Which institutions do what?

Institutions matter. Chancel, Kahn, Thaler, and Sunstein are all important writers, contributors to mainstream environmental economics. However, there are clearly forebears and better-known environmental economists. These forebears, too, glorify prices and favor minimalist state design to create and maintain functioning markets in all areas of society, economy, and environment, but they do so in different ways. Environmental market engineering has long included the tragedy of the commons and the global public goods problem. One general solution has been the creation of private property in everything as a solution. Second, Elinor Ostrom's (1990, 2009) analysis of making agreements to maintain common pool resources—without necessarily privatizing them—could also be mentioned. A third, the notion of "climate clubs," is proposed by William Nordhaus (2020). Of all these, it is the third that directly speaks to the international architecture to make all nations unite to address the free-riding problem. Hence, this last-mentioned notion requires further attention.

William Nordhaus (2018, 2020) has pointed out that the nations of the world, seeking to address the free-riding problem, have themselves been struck by the same problem. Nations, like individuals, are selfish. Following this *methodological individualism*, nations will free-ride to maximize their gains and minimize their costs. For these reasons, consensus-based voluntary global environmental agreements

targeted at reducing emissions have failed. From COP 1 to COP 26, these agreements have been fine-tuned, of course, but their architecture remains intact: consensus-based, voluntary, aimed at reducing emissions, and devoid of the centrality of the market and its powerful incentivizing power. So, emission levels continue to rise, and agreements continue to fail.

In their place, Nordhaus (2018, 2020) proposes the idea of climate clubs. Each club will be a group committed to climate action, but its target will be on pricing carbon. No emissions reduction target is needed. Members of the club will benefit from trading with one another. Those who breach the pricing regime and those who are outside the club will be penalized. The penalties could differ, but they need to be uniformly disincentivizing. Nonmembers, for example, could be penalized by being asked to pay tariffs on *all* goods—regardless of whether they are polluting or not—exported to the climate club. On the other hand, those who opt to join the climate club will benefit from the free trade of all goods at a certain carbon price. Thus, international negotiation will focus on deciding upon a simple and single carbon price in the form: \$x per ton of carbon dioxide. Nordhaus (2018, 2020) hopes to solve the free-riding problem in this way because nonmembers, thinking of their own self-interest, will pay to join the club, as the benefit of joining the club is far greater than the cost of staying out. Insiders will benefit from the club. The cost of compliance will be recouped nationally: either from setting local carbon taxes or designing a cap and trade system locally. The resulting carbon revenues could then be used to pay the international price of emissions.

This proposal assumes that the world is flat, with a linear causal theory of environmental problems. However, the world, as we know, is not flat. K. W. Kapp ([1950] 1971) famously demonstrated that the causes of environmental problems are circular and cumulative. The uneven development of the world has been created and maintained by a few rich and powerful countries. This stratification reproduces the environmental crises. The proposed modern club disguises the free-riding of the old clubs centered on the enclosure and encircling of land and labor through creating private property

in the commons. This historical free-riding created a continuing advantage for the richer nations to this day, and systemic, even existential, detrimental forces for the rest. Ignoring these forces shows a serious disconnect between mainstream economic theory and real-world socio-ecological crises.

Conclusion

The worsening of the world's ecological problems in the context of widening inequalities has propelled the ecological question closer to the center of mainstream economics. Clothed in rhetorical flourishes about social justice—which only at best can be called humanistic—directed towards prices and behavioral nudges, mainstream economics has something to offer on the serious and existential problem of real crises. However, these solutions are limited to analyses of income and substitution effects, along with behavioral questions. History has, of course, been shaped by force, too, and the present continues to be patterned after the past, but the mainstream economics approach to this history is problematic.

More fundamentally, the three books discussed in this article demonstrate a rather narrow conception of inequality. All the books are solidly focused on the Global North, a point also made by Kevin Gardiner (2021). When their focus occasionally shifts to the Global South, it is mere window dressing and name dropping, nothing substantive or sustained. Crucially, the difference emphasized is “us and them,” but never a consistent theory of us *because of them* and us *against* their interest. Mainstream economists clearly have no compelling theories concerning colonialism, neocolonialism, imperialism, or ecological imperialism. There are, however, some critical comments about markets. Thaler and Sunstein, for example, point to “snake oil” markets (Thaler and Sunstein 2021: 100–102) in which fraudsters peddle quick fixes (“snake oil”) that mostly happen to be untrue and, on that basis, call for more nudging. However, such concerns are friendly criticisms intended to create even more markets, much like George Akerlof's (1970) earlier criticisms of the “market for ‘lemons’.” Mainstream economics has no theory of ecological imperialism, whether in humanist form (Chancel), pure form (Kahn),

or behavioral form (Thaler and Sunstein). It is imperative to look to other schools of thought for guidance, inspiration, and action because continuing to rely on mainstream economic theory risks overlooking actually existing ecological imperialism.

Acknowledgments

Many thanks to the Helsinki Institute of Sustainability Science (HELSUS) for funding (“Societal Impact Funding”) the Global South Encounters 2022 of which this article is part.

References

- Akerlof, George. (1970). “The Market for ‘Lemons’: Quality Uncertainty and the Market Mechanism.” *Quarterly Journal of Economics* 84(3): 488–500.
- Bellanger, Manuel, Robert Fonner, Daniel Holland, Gary Libecap, Douglas Lipton, Pierre Scemama, Cameron Speir, and Olivier Thébaud. (2021). “Cross-Sectoral Externalities Related to Natural Resources and Ecosystem Services.” *Ecological Economics* 184: 1–10.
- Boyce, James. (2020). “The Environmental Cost of Inequality.” *Scientific American* July 1: 101–105. <https://static1.squarespace.com/static/5c33dbd69d5abbfa584fc9d2/t/60d621b612efc560376c57f6/1624646071242/Boyce+Scientific+American+2021.pdf>
- Chancel, Lucas. (2020). *Unsustainable Inequalities: Social Justice and the Environment*. Cambridge, MA: Belknap Press of Harvard University Press.
- Crosby, Alfred. (1986). *Ecological Imperialism: The Biological Expansion of Europe, 900–1900*. Cambridge, UK: Cambridge University Press.
- Economist*. (2022a). “Mr. Putin Will See You Now.” January 8–14: 56.
- _____. (2022b). “Power Play: The New Age of Energy Security.” March 26–April 1: 69.
- Eichengreen, Barry. (2021). “Review of *Adapting to Climate Change* (by Matthew E. Kahn).” *Foreign Affairs* May/June. <https://www.foreignaffairs.com/reviews/capsule-review/2021-04-20/adapting-climate-change-markets-and-management-uncertain-future>
- Endres, Anthony, and David Harper. (2020). “Capital in the History of Economic Thought: Charting the Ontological Underworld.” *Cambridge Journal of Economics* 44(5): 1069–1091.
- Foster, John, and Brett Clark. (2004). “Ecological Imperialism: The Curse of Capitalism.” *Socialist Register* 40: 186–201.

- Gardiner, Kevin. (2021). "Review of *Adapting to Climate Change Markets and the Management of an Uncertain Future* (by Matthew E. Kahn)." *Society of Professional Economists* November 29. <https://spe.org.uk/reading-room/book-reviews/adapting-to-climate-change/>
- Geide-Stevenson, Doris, and Alvaro La Parra-Perez. (2021). *Consensus Among Economists 2020: A Sharpening of the Picture*. Ogden, UT: Weber State University. https://www.researchgate.net/profile/Alvaro-La-Parra-Perez/publication/357526861_Consensus_among_economists_2020_A_sharpening_of_the_picture/links/61d272d8da5d105e55166551/Consensus-among-economists-2020-A-sharpening-of-the-picture.pdf
- Hardin, Garrett. (1968). "The Tragedy of the Commons." *Science* 162(3859): 1243–1248.
- Hody, Cynthia. (1991). "Review of *Ecological Imperialism: The Biological Expansion of Europe, 900–1900* by Alfred W. Crosby." *Politics and the Life Sciences* 10(1): 81–83.
- Johnson, Jay, Gary Pecquet, and Leon Taylor. (2007). "Potential Gains from Trade in Dirty Industries: Revisiting Lawrence Summers' Memo." *Cato Journal* 27(3): 397–410.
- Kahn, Matthew E. (1993). *Three Essays on Environmental Economics*. Chicago: University of Chicago.
- _____. (2010). *Climatopolis: How Our Cities Will Thrive in the Hotter Future*. New York: Basic Books.
- _____. (2021). *Adapting to Climate Change: Markets and the Management of an Uncertain Future*. New Haven, CT: Yale University Press.
- Kapp, William. ([1950] 1971). *The Social Costs of Private Enterprise*. New York: Schocken Books.
- Loneragan, Eric, and Corinne Sawers. (2022). *Supercharge Me: Net Zero Faster*. Newcastle upon Tyne, UK: Agenda Publishing.
- Naik, Gayathri. (2021). "Book Review: *Unsustainable Inequalities: Social Justice and the Environment* (by Lucas Chancel)." *LSE Review of Books* March 5. <https://blogs.lse.ac.uk/lsereviewofbooks/2021/03/05/book-review-unsustainable-inequalities-social-justice-and-the-environment-by-lucas-chancel/>
- Nordhaus, William. (2018). *Climate Change: The Ultimate Challenge for Economics (Prize Lecture)*. Stockholm: Nobel Foundation.
- _____. (2020). "The Climate Club: How to Fix a Failing Global Effort." *Foreign Affairs* 99(3): 10–17.
- Ostrom, Elinor. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge, UK: Cambridge University Press.
- _____. (2009). *Beyond Markets and States: Polycentric Governance of Complex Economic Systems (Prize Lecture)*. Stockholm: Nobel Foundation.

- Pigeaud, Fanny, and Ndongo Sylla. (2021). *Africa's Last Colonial Currency: The CFA Franc Story*. London: Pluto Press.
- Piketty, Thomas. (2014). *Capital in the Twenty-First Century*. Cambridge, MA: Belknap Press of Harvard University Press.
- _____. (2019). *Capital and Ideology*. Cambridge, MA: Belknap Press of Harvard University Press.
- Shrader-Frechette, Kristin. (2011). *What Will Work: Fighting Climate Change with Renewable Energy, Not Nuclear Power*. Oxford, UK: Oxford University Press.
- Stilwell, Frank. (2011). "Marketising the Environment." *Journal of Australian Political Economy* 68: 108–127.
- Summers, Lawrence. (1991). "The Lawrence Summers World Bank Memo (Excerpt)." *New York Times* December 12. <https://www.uio.no/studier/emner/sv/oekonomi/ECON2920/v20/pensumliste/summers-memo-1991-%2B-nytimes.pdf>
- Thaler, Richard, and Cass Sunstein. (2021). *Nudge: The Final Edition*. New York: Penguin Books.
- Van der Heijden, Jeroen. (2021). "Brief Book Review of *Nudge: The Final Edition*." *From the Regulatory Frontlines* November 8. <https://regulatoryfrontlines.blog/2021/11/08/brief-book-review-nudge-the-final-edition/>
- Varkkey, Helena. (2016). *The Haze Problem in Southeast Asia: Palm Oil and Patronage*. New York: Routledge.
- Weiskel, Timothy. (1987). "Review of *Ecological Imperialism: The Biological Expansion of Europe, 900–1900* by Alfred W. Crosby." *Environmental Review* 11(3): 231–233.