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The creationist foundations of Herman Daly's steady state economy

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Introduction

The notion of a steady state economy (SSE) has been central to the sustainability debate since the 1970s (Daly, 1973, 1977). Especially in North America, ecological economics has been strongly identified with the SSE. Its best-known advocate, Herman Daly, used the concept to make eloquent critiques of economic growth that helped build the foundations of ecological economics. He was a tireless popularizer of the adverse effects of economic growth on human well-being and the natural world. We argue that Daly's formulation of the SSE cannot be fully understood without examining its creationist core.¹ In numerous articles, including one published posthumously in this Journal (Daly, 2022), he makes false claims about well-established facts of evolution and evolutionary theory. His opinions are not backed by any credible evidence or references to the relevant scientific literature. Daly rejects the basic understandings of contemporary evolutionary biology and its naturalistic (non-supernatural) explanation for the origin of life and the place of humans in the biosphere. For Daly, accepting neoDarwinian² evolution is tantamount to accepting the extreme view that the world around us is strictly predetermined, with no place for human agency or purpose. This idea is the starting point for his formulation of the SSE. He maintains that the way out of this impasse is to reject neoDarwinian materialism and to embrace a system of value that will provide a way to objectively evaluate different states of the world and guide policy. In Daly's view, objective value is given by Judeo-Christian religion and this system of value will lead to the steady state. Each component of Daly's framework is problematic as is the logic linking them. Daly has espoused these views for decades in numerous publications (Daly, 1977, 1995, 1999, 2002, 2013b, 2019, 2022).

Although he does not use the term, Daly advocates "intelligent design" as an alternative to evolutionary biology. He maintains that life could not have originated from non-life without divine intervention and, likewise, the human mind (consciousness, intellect, souls) cannot be explained by science and must also be the result of divine intervention. Daly uses these claims to attack "materialist naturalism" as a

¹ This paper grew out of a lively exchange between Daly and Gowdy in the Spring of 2022 concerning an earlier version of Daly's (2022) RWER paper. See Gowdy comment (2022).

² Following Daly, we use the term neoDarwinian to refer to contemporary evolutionary biology.

world view.³ According to Daly, contemporary biology views evolution as a completely random, non-directional process that produces the characteristics of the biosphere by pure chance. He maintains that a belief in natural explanations for the world around us implies a determinism that precludes free will, choice, and purpose (Daly, 2002, 2013b, 2019, 2022). This leads him to further argue that evolutionary theory precludes its adherents from making ethical judgments (Daly, 1999, 2022).

Daly's faulty interpretation of evolutionary theory leads him to the conclusion that it is a "metaphysical world view" and a major obstacle to a sustainable society. "It seems that an ecologically sustainable economy, as a policy of creation care, will not get far in a world dominated by materialist naturalism" (Daly, 2019, 3).⁴ Daly's steady state has been subject to criticism (Georgescu-Roegen, 1989; Klitgaard and Krall, 2011; Krall and Klitgaard, 2011; Pirgmaier, 2017; Smith, 2010) but the creationist foundations of his system of thought have not been widely recognized, if at all. For Daly "growthmania" is not primarily the fault of capitalism, greed, economic power or anything structural about the economy. It is the hubris of materialist evolutionary biology that prevents us from achieving a sustainable society.

However, a society unable to enact and enforce serious policies because it is lured by the lurking fecklessness of neodarwinism, runs its own risk of suicide. The survival value of neodarwinism is likely negative for the society that adopts it as its worldview. (Daly, 2006b, 16)

This article is not about Daly's religion *per se*. It is about his faulty understanding of basic concepts from evolutionary biology and how this misunderstanding forms his rationale for the SSE. For him, failure to address the excesses of economic growth is a moral failure rooted in neoDarwinian evolutionary theory. Grounded in creationism, Daly's vision of the steady state is ahistorical, based on marginal analysis and comparative statics, and built on a rejection of modern evolutionary science. Ecological economics was founded on the promise of finding common ground between economics and ecology. Daly's rejection of basic biological science needs to be addressed. In the pages below we discuss the social/political context of Daly's creationism, the steps of Daly's argument from evolutionary theory to objective value, and the relevance of his creationism to his concept of the steady state.

Daly's Creationism in Context

To understand Daly's positions on evolutionary biology, it is important to understand the origin and the context of his opinions. Daly's creationism is part of a broader tradition, centered in the United States, intent on replacing modern evolutionary biology with a supernatural understanding of the origin of life and the place of humans in the modern world. The leading advocate for creationism and for the teaching of intelligent design in public schools is the Discovery Institute, founded by the conservative commentator George Gilder in 1990. The Discovery Institute uses a number of strategies to promote creationism and to generate controversies where none exist in the scientific community. Each of these are embraced by Daly.

³ In various articles, Daly also refers to materialism and materialists as "scientism", "neodarwinists, naturalists", "high intelligentsia", "modern intelligentsia", "scientific materialists", "mechanistic biologists", "monists", "scientists" or "biologists."

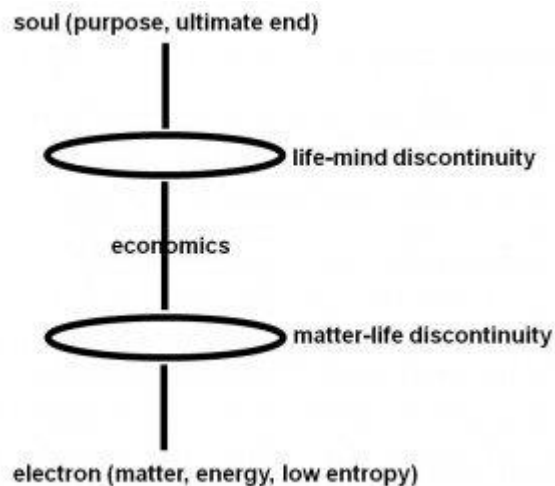
⁴ Although creationism is encountered most frequently in North America, the movement is making headway in Europe (Blanke and Kjaergaard, 2016).

1. The God of the gaps - Biologists cannot explain the origin of life or the “uniqueness” of humans so some supernatural agent must be responsible for both.
2. Irreducible complexity – Evolution cannot explain how life’s complex features arose, so there must be a supernatural explanation.
3. Teach the controversy. There is great controversy among biologists about the validity of modern evolutionary science, so why not teach creationism as well.

The God of the gaps

Creationists claim that there are two gaps in the history of life on earth that can only be explained by divine intervention. God made two interventions as illustrated in Daly’s (2013b, 2) representation of “dualist economics,” which claims there is a discontinuity between the material universe, subject to the entropy law, and the human soul giving purpose to human agency.

Figure 1. Daly’s Dualist Economics and Creationist Talking Points



The matter-life discontinuity requires a supernatural intervention to create life on earth. Science cannot explain the origin of life. Daly’s characterization of how biologists view the emergence of life shows a lack of understanding of the modern literature in evolutionary biology. He writes:

When confronted by other scientists with the extreme fine-tuning of the physical laws and numerous constants necessary for life, the materialists admit that the compound probability that life emerged in our universe by chance is infinitesimal. So, they postulate infinitely many (unobservable) universes in which the infinitesimal probability, multiplied by infinitely many trials, could, and evidently did, happen. (Daly, 2022, 12)

Who are the “materialists” who “admit” that the probability that life emerged by chance is infinitesimal and that it required an infinite number of universes? Daly ignores contemporary biology and the

extensive research on the origin of life.⁵ According to Daly, materialists say that everything that exists is due to pure chance. Daly maintains that biologists believe that for life to appear there must be an infinite number of universes with an infinite number of random chances. His only source for this assertion, given in numerous publications (Daly, 2006a, 2013b, 2015a), is an offhand remark by Francis Crick (without citation) that Crick later retracted. Daly insists that Crick believed that the chances of life spontaneously emerging were so “physically improbable (miraculous) that it must have arrived here from space...” (Daly, 2015a, 1)⁶

Daly maintains that the complexity we see in the biological world could not have arisen from pure chance as biologists supposedly claim:

To preserve the idea of chance as reasonable cause, and thereby escape any notion of Creator or Telos, they argue that although these coincidences are indeed miraculously improbable in a single universe, they would surely happen if there were infinitely many universes. And of course our universe is obviously the one in which the improbable events all happened. If you don't believe that Shakespeare wrote Hamlet, you can claim that infinitely many monkeys pecking away at infinitely many typewriters had to hit upon it someday. (Daly, 2015a, 2)⁷

The argument assumes that the products of evolution spring up out of nowhere with no history or context. Here is a rebuttal of the “pure chance” interpretation of evolution (Rennie, 2002):

Chance plays a part in evolution (for example, in the random mutations that can give rise to new traits), but evolution does not depend on chance to create organisms, proteins or other entities. Quite the opposite: natural selection, the principal known mechanism of evolution, harnesses nonrandom change by preserving “desirable” (adaptive) features and eliminating “undesirable” (nonadaptive) ones. As long as the forces of selection stay constant, natural selection can push evolution in one direction and produce sophisticated structures in surprisingly short times.

⁵ There exists a vast literature on the emergence of life from inorganic compounds. For an introduction see the Wikipedia article “abiogenesis.” Other good sources are New Scientist (2017) and Lane (2016).

⁶ What Crick really thought: “In the early 1970s, Crick and Orgel further speculated about the possibility that the production of living systems from [molecules](#) may have been a very rare event in the [universe](#), but once it had developed it could be spread by intelligent life forms using [space travel](#) technology, a process they called “[directed panspermia](#)”. In a retrospective article about their work [Orgel and Crick, 1993]: “Crick and Orgel noted that they had been unduly pessimistic about the chances of [abiogenesis](#) on Earth when they had assumed that some kind of self-replicating protein system was the molecular origin of life.” Wikipedia, “Francis Crick”

⁷ Rennie (2002) gives a rebuttal of the monkeys with typewriters argument:

As an analogy, consider the 13-letter sequence “TOBEORNOTTOBE.” A million hypothetical monkeys, each typing out one phrase a second on a keyboard, could take as long as 78,800 years to find it among the 2613 sequences of that length. But in the 1980s Richard Hardison, then at Glendale College, wrote a computer program that generated phrases randomly while preserving the positions of individual letters that happened to be correctly placed (in effect, selecting for phrases more like Hamlet's). On average, the program re-created the phrase in just 336 iterations, less than 90 seconds. Even more amazing, it could reconstruct Shakespeare's entire play in just four and a half days.

The life-mind discontinuity claims that humans are a unique creation of God and given special privileges and responsibilities. Human consciousness and self-awareness cannot be explained by natural causes. Daly believes that humans transcend the laws of nature that govern other species:

Those ecological economists less enthralled by neo-Darwinism see humans as fundamentally different, as part of the larger evolved creation to be sure, but a special creature who, like it or not, is in charge of the larger creation, because far more than other creatures, humans reflect the image, albeit a broken image, of their Creator. (Daly, 2022, 12)

A principle of ecological economics is that humans and the human economy are subject to the same scientific laws that govern other species. This is the basic message of Daly's mentor, Nicholas Georgescu-Roegen in *The Entropy Law and the Economic Process* (1971). Daly's creationism leads him to reject this basic insight.

Irreducible complexity

A favorite argument against evolution given by creationists, particularly those associated with the Discovery Institute, is that life is too complex to have arisen without a creator.⁸ Daly's embrace of the creationist irreducible complexity argument is clear:

Even in the realm of materialism it [neo-Darwinist theory] faces some serious glitches. I refer to the problem of how it happens that many interdependent parts of a complex organ, each of which has no independent survival value, can both occur and be retained until the whole organ is assembled into a complete functioning unit, which only then can contribute to survival and thus be selected. (Daly, 2013b, 1)

Darwin, like modern biologists, understood that mutations (he called them "sports"), do not cause evolution by themselves. Natural selection picks out the useful mutations and these are retained and passed on to future generations. Biologists recognize sources of variation other than mutations, for example, genetic drift, hybrids and horizontal gene transfer. The importance of this to ecological economics is that Daly's anti-evolution views are central to his conception of the SSE. For him, a sustainable economy will come about through "transcendence"—human divineness transcends the laws that bind other species (Daly, 2021)—not through the evolutionary unfolding of a complex, continually changing system.

⁸ Here is a summary of the irreducible complexity argument (Wikipedia):

Irreducible complexity (IC) is the argument that certain biological systems with multiple interacting parts would not function if one of the parts were removed, so supposedly could not have evolved by successive small modifications from earlier less complex systems through natural selection, which would need all intermediate precursor systems to have been fully functional. Irreducible complexity has become central to the creationist concept of intelligent design (ID), but the concept of irreducible complexity has been rejected by the scientific community, which regards intelligent design as pseudoscience. Irreducible complexity and specified complexity are the two main arguments used by intelligent-design proponents to support their version of the theological argument from design.

Teach the Controversy

This is a Discovery Institute initiative to promote the teaching of creationism in public high schools. The strategy, also called the wedge strategy, is to place creationism on the same footing as accepted evolutionary science. The mantra is: “Why can’t we hear both sides?” The intent is to create controversy where none exists. The claim that intelligent design is an alternative to accepted science has been denounced by numerous scientific organizations including the American Association for the Advancement of Science (2013).

A ploy of “teach the controversy” is to claim that neoDarwinian evolution is controversial among biologists. In Daly’s (2006a, 14-15) words:

Macroevolution is an extrapolation of the same mechanism observed in microevolution (random mutation and natural selection) to explain the development of all species from a presumed single ancestor over a long period of time. This cannot be directly observed nor repeated in a laboratory and is an extrapolation. Is it a reasonable conjecture? Certainly. Is there evidence for it? Yes. Are there gaps in the evidence and logical glitches in the theory? Yes. Scientists themselves debate these when they think creationists are not looking.

Here again Daly shows a basic misunderstanding of evolutionary theory and evidence. Speciation has been “observed” in the fossil record as has very rapid speciation as seen in the evolution of cichlid fish in Africa’s Great lakes. The Faroe Island house mouse is another example—the new species evolved in less than 250 years after being introduced to the island.

Natural selection is the driving force of evolution, but it is even more powerful than Darwin imagined. Phenomena like epigenetics, hybridization, horizontal gene transfer, and the evolution of evolvability have revolutionized our understanding of evolution (Jablonka and Lamb, 2014). The field of evolutionary biology is one of the most exciting areas in science today (New Scientist, 2017). Daly goes so far as to say that Darwin has lost favor among biologists because of his materialism. He writes (Daly 2002, 195):

The economic determinism of Marx has now collapsed both intellectually and politically. The psycho/sexual determinism of Freud is increasingly considered pseudo science of the worst kind. The remaining member of the nineteenth century trinity of determinism, Darwin, is still riding high. However, the neodarwinist evolutionary determinism of chance and necessity with its total rejection of purpose and design, is undergoing serious reconsideration in many quarters, even though somewhat underground.⁹

Daly’s creationist views on evolution are beyond the fringe of accepted science.¹⁰ Evolutionary biology has a 200-year history of solid theory and evidence based on the contributions of tens of thousands of dedicated scientists hammering out one of the most accepted bodies of knowledge in science.

⁹ In a footnote to the last sentence Daly (2002, 196) cites Discovery Institute fellows Michael Behe and Phillip Johnson. For Daly, “reconsideration in many quarters” means by creationists associated with the Discovery Institute.

¹⁰ See the resolution on intelligent design adopted by the American Association for the Advancement of Science (AAAS, 2013).

Intelligent design is a pseudoscience that has no place in ecological economics or the sustainability debate.

Daly's Creationism and his Conception of the Steady State

How does Daly's creationist framework affect his analysis of the steady state? Daly's rejection of evolutionary theory leads him to a concept of the steady state that incorporates the faults of standard economic theory elucidated by ecological economists (1) it ignores basic understandings of the natural sciences, (2) it relies on identifying marginal changes in a near-to -equilibrium system, and (3) it is ahistorical. Daly's creationist pre-analytical vision prevents him from seeing the economic process as an evolving system with contingencies, re-combinations, dead ends, and revolutionary breakthroughs. Here is Daly's basic argument:

1. Scientists cannot explain the origin of life without resorting to the argument that it is the result of random, infinitely many trials and errors without direction or purpose. Claiming that neoDarwinian evolution precludes human agency is the starting point for Daly's argument for a steady state economy. There exists a vast literature on the nature of, and the limits to, human agency. Daly's contribution to this debate is to insist that neoDarwinian evolutionary biology precludes free will.
2. Since evolutionary biologists believe that everything that exists is the result of pure, directionless chance, they cannot legitimately have opinions about anything. Daly's only authority is a 100-year-old reference to the philosopher Alfred North Whitehead's (1925) "lurking inconsistency."

Daly's perceived lurking inconsistency:

My point for now is that biologists/ecologists who teach a materialist neo-Darwinist worldview to sophomores on Monday, Wednesday, and Friday, and then devote their Tuesdays, Thursdays, and Saturdays to pleading with Congress and the public to enact policies to save this or that endangered species are in the tight grip of a serious inconsistency. (Daly, 1999, 693; 2013a, 2)

As the biologist Alan Holland (2002, 203) puts it in a commentary on a paper by Daly: "To put it bluntly there seems to be no connection at all between Darwinism and the abandoning of criteria for making ethical judgements, nor between Darwinism and the embracing of philosophical determinism." Natural selection does not preclude "choice." Holland (2002, 205) writes:

...Daly's claim that natural selection makes our choices for us is quite simply a travesty. The associated claim that there is no room for purpose in the neodarwinian worldview is untenable, as is Whitehead's claim, endorsed by Daly, to detect a "lurking inconsistency" in the modern worldview—allegedly, a view of the world as a mechanism which nevertheless contains self-determining organisms. Insofar as natural selection might be viewed as a mechanism, it is a mechanism that fully embraces self-determining organisms.

3. Since materialist evolution precludes direction or purpose, we need objective value as a basis for making judgments about better or worse states of the world. Objective value is given by Judeo-Christian religion.

But where does our knowledge of objective value come from? I would say from religious insight, specifically in the West from the Judeo-Christian tradition whose historical dominance has been greatly weakened by attacks from the secular intelligentsia, and by its own internal failures and worldly corruptions. At the same time Scientism has taken the cultural place of religion, but promotes a materialist world view productive of power, but devoid of purpose or value. (Daly and Morgan, 2019, 152)

Daly's source for his objective value argument is C. S. Lewis who stated that "A dogmatic belief in objective value is necessary to the very idea of a rule which is not tyranny or an obedience which is not slavery" (quoted in Daly, 2022). Daly's uncritical use of the creationist literature and discredited creationist advocates, and the dubious logic he uses to defend his positions, raise serious questions about his SSE framework. For Daly, the inability to deal with economic growth is a moral failure rooted in neoDarwinian materialism.

4. From objective value to the steady state - Daly's vision of the steady state economy is based on faith in a Creator who has given us a blueprint (objective value) for how to live sustainably.

Now here I come trying to convince you that what God really likes best is a sustainable or steady state economy. (Daly, 1996, 205)

Indeed, it is precisely because science and technology have given us such power that the scale of the economy has been able to grow to the point where we must now consciously face the fundamental limits of creaturehood: finitude, entropy, and ecological dependence. Science can help us adjust to these limits in the best manner, but to think that we will overcome them is to claim authority to remake God's Creation on our own blueprint, rather than to maintain and care for it according to God's. (Daly, 1996, 214)

The steady state is a better version of the existing economic system—one more just and less exploitative of the natural world. Daly claims that it is hubris to think we mortals can overcome the limits of God's universe—a hubris centered in the world view of scientific materialism and endless growth. By contrast, we must maintain and care for the steady state according to God's plan.

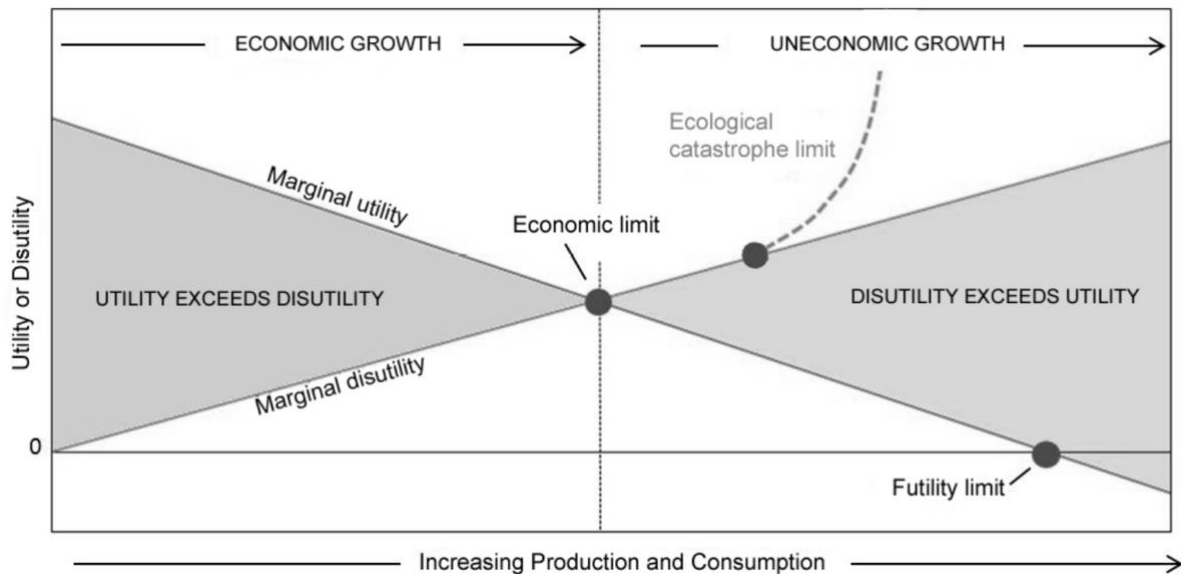
The first step in Daly's path to the steady state is to cap economic activity "at or near existing or nearby levels." After this is achieved, we can determine the optimal scale of this non-growing system.¹¹

[T]he first issue remains to stop the momentum of growth and to learn to run a stable economy at historically given initial conditions. ... But we cannot go into reverse without first coming to a stop. Step one is to achieve a steady-state economy at existing or nearby levels. Step two is to decide whether the optimum level is greater or less than present levels. ... My own judgment on these issues leads me to think we have overshot the optimum. (Daly, 1991, 52)

Figure 2 below shows Daly's (2015b, 6) conception of the temporary steady state (step one).

¹¹ Following Georgescu-Roegen's (1976, 24) view that "...the necessary conclusion of the arguments in favor of that vision [the stationary state] is that the most desirable state is not a stationary, but a declining state" a large literature exists advocating a declining state (Bonaiuti, 2011).

Figure 2. Daly's Limits to Growth: Finding the Steady State Economy (from Daly 2015b, 6)



On one hand he recognizes the conflict between economic activity and the environment, but he sees this conflict in a linear, mechanical, and non-evolutionary way. Past a certain point (the “economic limit”), economic growth reaches the point where the costs of further growth exceed the benefits. The diagram shows the problems with Daly’s comparative static analysis of the steady state. As several writers have pointed out, it is essentially standard neoclassical economics (Pirgmaier, 2017; Spash, 2020; Ziegler, 2007). It is defined in terms of “utility” to humans. It assumes smooth and continuous cost and benefit curves. It assumes there is an optimal level of economic activity and some optimal state of the environment. The “ecological catastrophe” limit is given by a point on the continuous marginal disutility curve, meaning that changes above and below “catastrophe” are small and incremental. Daly (2015b, 6) recognizes that: “Some human activity, or novel combination of activities, may induce a chain reaction, or tipping point and collapse our ecological niche.” The problem is that economic activity to the left of the economic limit may lock us into a catastrophic change well before we know what’s happening and before we reach the point where $MC=MB$ (where marginal utility equals marginal disutility). Climate change is a case in point. The “futility limit” is where “the marginal utility of production falls to zero.” How this is different from the $MC=MB$ “economic limit” is not clear. Both seem to be based on a neoclassical utility function. Both seem to require a social welfare function. Daly’s use of neoclassical tools brings with it all the theoretical difficulties associated with standard economics (Gowdy, 2004, 2010; Gowdy and Erickson, 2005; Keen, 2021). How is utility defined and how is it aggregated? Daly’s combination of neoclassical economics, and social and environmental critiques of it, is confusing and contradictory. An understanding of evolutionary change—abrupt discontinuous change, contingency, historical lock-in, novelty by combination—is not compatible with comparative statics and marginal analysis. Daly’s static view of the economy as a near to equilibrium system leads him to fall back on standard economic theory which describes an economy that can be manipulated by tweaking prices and regulating market failures. What would the steady state look like? It would be a static system frozen in time and space. Some ecological economists will object to say that Daly insisted that a steady state economy can develop without growing (sustainable development). Georgescu-Roegen was merciless in his attacks on the steady state and sustainable development:

Understandably, the meretricious optimism of these two slogans—steady state and especially sustainable development—attracted legions of converts who gathered into one “global” forum after another to enhance the reputation of the promoters of the bill. There must be some special decorative profit in any such agitation since many large corporations sought a badge of distinction by founding [*sic*, “funding”?] such activities. (Georgescu-Roegen, 1989, 168)

From the beginning, Daly’s recommendations about the steady state were based on concepts from standard economics—use non-renewable resources at a rate equal to or less than increases in efficiency or the discovery of substitutes and use renewable resources at a rate less than the environment’s assimilative capacity (Daly, 1973, 1977). The prospects for the world’s governments to unite behind binding agreements to impose absolute limits on resource extraction and pollution are dim. Daly’s specific stewardship steady state policies include cap-auction-trade systems for basic resources, ecological tax reform, a shorter workweek, public ownership of common goods, and stabilizing population at or near current the current level (Daly, 2013c).

According to Daly these policies will bring us to a non-growing economy “at or near existing levels.” This is a surprising statement since the current level of human activity is decimating the non-human world and radically destabilizing the earth’s climate. Most of these are laudable, although pedestrian, policies. Most are part of standard neoclassical environmental economics and/or a widely accepted progressive agenda. We have no problem with these short-run policies. Their implementation would make the world a better place. Our concern is that Daly’s SSE does not explain how the steady state actually functions as a dynamic, irreversible, continually evolving and adapting system, or how it could be imposed on the existing capitalist system. Richard Smith (2010, 121) writes of the steady state:

But one of the most frustrating aspects of reading Daly’s books is this maddening imprecision. If it’s not capitalism and it’s not socialism, what exactly is it? For a start, who owns it? If we’re talking about a modern industrial economy, who owns the factories, the mines, the auto plants, the oil companies, the airlines, etc.? And if this economy is mostly comprised of corporations, owned by investors, what are the implications of such corporate ownership for the problem of growth? And what are the implications of the threat of unemployment if one or another factory has to shut down in order to stop pollution or out-of-control growth, in order say, to get a ‘steady state’ economy? Daly says almost nothing about such questions.

Again, Daly’s problem with evolutionary biology, is that there is no “purpose.”¹² In his view, this precludes biologists from having opinions about the state of the world, since they believe that everything is meaningless and thus there is no way to judge “better” or “worse” states. Religion can give us purpose by revealing God’s will:

Is man basically a fallible creature whose salvation lies with his Creator rather than with his own creations? Or is man potentially the infallible creator himself, whose salvation lies in his own creations? The first view of man as fallible creature, ultimately dependent on the Creator, is the view that underlies the SSE. It is the traditional wisdom of the ages, taught by the great religions. The second view, man as a potentially infallible creator seeking salvation in the perfections of his creations, leads

¹² “Purpose” is a human construct. In a religious vision we imagine a God who assigns purpose to his creation. But humans can easily assign purpose to evolution. One could say that the purpose of a living being is survival and propagation of the species. Biologists wisely avoid the term.

to cosmic vandalism. It is the view, not of great scientists but of third rate devotees of modern scientism, whose numbers are legion. (Daly, 1977, 26)

To summarize, these are the steps to Daly's steady state: Reject modern evolutionary biology because it precludes human agency, reject materialism and replace it with Judeo-Christian "objective value" to give the human presence value and purpose, implement the steady state to fulfill our religious obligation (stewardship) to protect and care for God's creation (Daly, 2015a).

Summary and Commentary

Daly's rejection of neoDarwinian evolution is a major reason for the ambiguity and contradictions in the SSE. We cannot understand biophysical reality with supernatural explanations based on demonstrably false assertions. We need more, not less, of what Daly dismisses as scientific materialism, that is, natural explanations for natural phenomena. Ecological economics was founded on the basic idea that the human economy is part of the larger biophysical universe and that our species is subject to the same laws that apply to all others. The economy is an evolving, one-way system based on the laws of physical production and supported by values and world views, and interlocking systems. What would a materialistic, evolutionary grounding of ecological economics entail?

First, ecological economists must reject Daly's anti-evolution views. His view of evolution is unambiguous. He states clearly that modern evolutionary science should be rejected by ecological economists:

But in learning from ecologists, we must be beware of going overboard and importing into EE the metaphysical assumptions that many ecologists have often inherited from their parent discipline of neo-Darwinist biology. These metaphysical assumptions of philosophical materialism and determinism, however productive they may be in physical science, are fatal to policy sciences that require the recognition of conscious purpose as causative in the world, and ecological economics is a policy science. (Daly, 2019, 3).

There are many political roadblocks to an ecological economy, but the most fundamental barrier may turn out to be the repugnant metaphysical dogma of materialist naturalism that logically, but blindly, aborts the possibility of policy of any kind. (Daly, 2019, 3)

Few ecological economists would subscribe to Daly's creationism. But few recognize the fundamentalist pre-analytical vision underlying Daly's SSE. Georgescu-Roegen (1971) taught us the importance of physical, scientific laws in the economic process. Evolution is a one-way street of irreversibility, and irrevocable change. Optimal scale is an illusion in a continually changing universe. Second, addressing our current ecological and social predicament requires a deep historical and materialistic understanding of the evolutionary history of *Homo sapiens* and the human economy. We need not assume predestination to recognize patterns in our evolutionary history that transcend human intentionality. For example, after the agricultural revolution, the same complex cultural patterns and institutions evolved independently in the Indus Valley, the Far East, the Middle East, and the Americas. This convergent evolution suggests that some common underlying forces drove the evolution of complex human societies. To understand where we are and where we might be going requires a deep understanding of our evolutionary past (Gowdy, 2021; Krall, 2022, 2023). Insights from anthropology, economics and evolutionary biology can be used to build theories of social evolution and institutional

change (Wilson et al., 2023; Wilson and Gowdy, 2015). Evolutionary theory should certainly be included in Norgaard's (1989) methodological pluralism.

Third, Daly's reliance on the neoclassical model of marginal change in a near-to-equilibrium system is inadequate to understand major evolutionary transitions. Like other highly evolved complex systems, the human economy consists of interrelated, integrated and mutually reinforcing ultrasocial relationships (Gowdy and Krall, 2016; Krall, 2023).

Fourth, the notion of agency and free will needs to be addressed by ecological economics. An evolutionary and materialist world view suggests that human agency does not fully explain social evolution. Individuals have some degree of agency and self-determination, but complex socio-economic systems not so much (Gowdy, 2021; Krall, 2022). The large and growing literature on the role of agency (and the lack of it) in evolutionary change is a fertile field that can help us understand the limits to relying on individual initiative as a basis for public policy.

Daly's positive contributions to the limits-to-growth debate are undeniable. Given the forces now in play, human society will be radically different in a few hundred years, maybe in a few decades. It seems certain that climate change will lead to a major evolutionary transition in human social evolution. Given this, even if it were possible, should we institute polices to preserve the existing system or should we try to anticipate the likely trajectory to a system in a new balance with the natural world? Given the magnitude of environmental disruption, especially climate change and the decimation of non-human species, together with increasing political and social instability worldwide, it's hard to be optimistic about our immediate prospects. If we take a long-run view, however—and by long-run we mean the next few hundred years—there is reason to hope. Nature has a way of resolving imbalances. Evolutionary biology, not fundamentalist religion, is the best guide to understand the place of our species in the biophysical universe, and to formulate policies to address our current predicament as the Anthropocene unfolds.

Undoubtedly, the current growth must cease, nay, be reversed. But anyone who believes that he can draw a blueprint for the ecological salvation of the human species does not understand the nature of evolution, or even of history—which is that of a permanent struggle in continuously novel forms, not that of a predictable, controllable physio-chemical process, such as boiling an egg or launching a rocket to the moon. (Georgescu-Roegen 1976, 25)

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Data: a critical perspective

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“Cram them full of non-combustible data, chock them so damned full of ‘facts’ they feel stuffed, but absolutely ‘brilliant’ with information. Then they’ll feel they’re thinking, they’ll get a sense of motion without moving. And they’ll be happy...”

Ray Bradbury ([1954], 2018), *Fahrenheit 451*.

Introduction

According to Klein and Morgan (2001, p. 1), “Since the late nineteenth century, measurement has been an integral part of economics”. Currently, based on powerful information technologies and software development, we live in the era of big data and its misleading “data science” without theory or “theory-free”. That being the historical setting, we have normalised living in a tyranny of metrics, i.e. in an age of mismeasurement, over-measurement, misleading measurement, and counter-productive measurement (Muller, 2018, p. 4).

Using as a backdrop the measurement in economics approach (Boumans, 2007), we will develop a critical perspective to data. To thoroughly accomplish it, we will first revisit the main characteristics of economics –and the classes of data produced and consumed by it as an empirical and pseudo experimental science. In this regard, we will be forced to address major issues, among others the non-neutrality of measuring instruments and its epistemological limits. Secondly, we will develop the gross domestic product (GDP) as a case of measurement “with theory” and the consumer price index (CPI) as a case of measurement without theory. Thirdly, we will close with recommendations to overcome the “often” application of “non-scientific methods” (Lequiller and Blades, 2014, p. 39) by statistical institutes –provoked by, as we will exhibit, the axiomatic imposition of equilibrium (Arnsperger and Varoufakis, 2022).

Labelling economics

Economics, much like any other discipline, is inherently social and historical. It is also an empirical science unlike, for example, theoretical quantum physics, and a pseudo experimental one –for a moment, let us think about the arguments behind the title of Sims’ (2010) paper, *But economics is not an experimental science*.

Our science is empirical because its objects of study –economic processes with their inputs and outputs, the many results, and so on– exist outside our heads. For example, in his *Guide to Griliches*, Nerlove (2001, p. F425) wrote, “Economics is an empirical science and thus concerned with the real economic world”.

As no other branch in our science, *ecological economics* correctly focuses on its socio-empirical basis (Vianna and Missemmer, 2023, p. 4):

... the economy is not above ground; it is embedded in society and in the natural world. There is no economic process or economic action disconnected from social relations and material constraints. All human activities take place in a social context and on planet Earth.

In botany –an experimental empirical science–, a flower falling from a tree, like a cherry blossom, stands as an object of study. Quite the opposite, in our socio-empirical discipline, we have to literally *recreate* our objects of study. To that end, long ago, economists became tool makers (Morgan, 2001, pp. 236-7):

We don't see a macroeconomy, a consumer price index, or an individual choice decision; hence, fashioning measuring instruments in economics has been, in part, a matter of developing ways of observing the economy.

Thus, data are, no more no less, a form of recreation of our objects of study and are not, in any sense, the result of controlled experiments carried out in a laboratory. The data roots in economic theory and its practice. As a consequence, as producers of data, caution must be exercised when handling instruments to the extent it may be difficult to distinguish (Boumans, 2005, p. 121) “between the facts about the phenomenon and the artefacts created by the instrument”. Or to quote our favourite post-Keynesian (Lavoie, 2008, p. 9):

The word artefact carries several definitions. The most common definition, relevant to science, says that an artefact, or artifact, is a spurious finding caused by faulty procedures... The word artifact is also used in the fantasy literature. In the fantasy and sorcery literature, an artifact is a magical tool with great power, like a magic wand.

Moreover, from our point of view, over time, economists, other professionals, and citizens alike have become carefree consumers of data. Regrettably, the diagnosis proposed by an insider is bleaker than ours (Bos, 2007, p. 7, and 2013, p. 4):

The problem is that national accounts are a language not very well spoken and understood anymore. This applies to economic researchers, policymakers and national accountants alike... The widespread illiteracy in national accounting among researchers should, therefore, be regarded as a threat to economics as an empirical and policy-relevant science.

We still need one more “label”. Following English political economy and its critique, notably Adam Smith, David Ricardo and Karl Marx, we must emphasise that, ontologically speaking, economics is also *political*.¹ Wealth, as Mr. Hobbes says, is (purchasing) power, the starting point of Smith's

¹ In their book *Approaches and Methodologies in the Social Sciences: A Pluralist Perspective*, della Porta and Keating (2008, p. 353) point out that ontology “...refers to the study of the essence of a certain phenomenon (i.e.

commanded labour theory ([1776], 1904, p. 31), scaled in terms of quantity of labour by Ricardo and surpassed by Marx from his definitions of value and surplus value. And certainly not in a special way since each and every (human) science is social, historical and political –without exception. As a corollary at this point, we must demystify the working of scientists (Han, 2022):

Scientists no longer tackle the social context of knowledge. They are doing positive research. Every knowledge takes place within a power relationship, and under power relations, new knowledge and discourses are generated. Knowledge is always embedded in a power structure. Simply today, positive research is done without recognising that one is under the spell of that power and without reflecting on the social context of knowledge.

Once economics is suitably characterised, we are in a position to address the type of data produced and consumed in our science. As follows from the discussion above, this major issue revolves around the epistemology – “how we know things” (della Porta and Keating. 2008, p. 22) – required in economics as a socio-empirical and pseudo experimental science.

The non-neutrality of measuring instruments

Measurement in economics has been developed and implemented by beautiful minds in our science. The major contributor is, without a doubt, Trygve Haavelmo. Certainly, other authors will be mentioned, for example, Angus Deaton, Richard Stone and, notably, Tjalling Koopmans.

Haavelmo (1944) entitled section 3 of his seminal monograph “*Observational*”, “*true*”, and *theoretical variables; an important distinction*. For all intents and purposes, the Nobel award-winning, who offered the foundations for the probabilistic revolution in econometrics, put the first two adjectives in quotation marks but not the word *theoretical*.

First, Haavelmo (1944) did not put the adjective *theoretical* in quotation marks because the starting point of the recreation of our objects of study as data is the theory. The other case would represent mere empiricism. Hence, initially, we assume that data are founded on theoretical definitions. Moreover, as practitioners, we should explore the kind of correspondence between their theoretical and accountant definitions, that is, at the extremes, weak or strong (Juselius, 2008, pp. 6-7). But believe it or not, in economics, we have remarkable examples of “measurement without theory” –the business cycle is the classical one (Koopmans, 1947), and the consumer price index is a modern case which will be examined later.

Second, and by extension, the act of indirect observation, as we economists do, and the instruments involved are not *neutral*. That being the case, what we have at hand, for example in the National Accounts (NA), are estimated values simply because only after *ad hoc* conversion processes are

without considering its specific variation)”. In this sense, neoclassical theory has emptied economics of content, replacing it with quackery and ideology (in French, *charlatanerie idéologique*). Bernard Maris, former member of the General Council of the Banque de France (2014, p. 14) wrote in the following terms: “Diabolical and sinister, economics is the ash with which our age covers its sad face. In a few decades, a century from now, before perhaps, it will seem implausible that a civilization could have attached so much importance to a discipline that is not only empty, but also utterly boring... A discipline that had only its own contradictions as a science and only its contradictions as a matter of rationality, economics would end up revealing itself as an incredible ideological quackery that was also the morality of an epoch.”

observations converted into measurements. Third, statistically speaking, the adjective *true* immediately draws attention to the measurement bias –the gap between the measured values and the true ones.

As the reader has already discovered, here we are not initially distinguishing the classes of data according to whether their generation process is deterministic or stochastic, but instead being consistent with our approach, highlighting their theoretical foundations.² That said, we should point out that the objects of study in economics are stochastic processes, and so, the routine application of algorithms, i.e. mathematical instruments, for seasonally adjusting and for extracting the trend, among other examples, contradicts their probabilistic nature.

A well-known instrument behind the bulk of available data is, in our current world, the complex survey. Still others are implicit and undervalued in terms of their implications, first and foremost the *aggregation instruments*. Regarding the book that founded the advanced literature of *index numbers*, Foster wrote (1922, p. vii):

In the future, we must substitute measurement for guesswork. Toward this end, we must first agree upon instruments of measurement. To the Pollak Foundation for Economic Research, it seems fitting, therefore, that its first publication should be *The Making of Index Numbers*.

In the sciences, theoretical insights precede the inventions of measuring instruments and, evidently, the act of measuring itself, not the other way around. That is how homo sapiens' mind operates. The title chosen by Maas (2001, p. 277) for his chapter is then misleading, *An instrument can make a science: Jevons's balancing acts in economics*. In contrast, Muellbauer's statement is forceful (1976, p. 32): "index numbers are not 'neutral' statistical indicators".

Hence, *how* do we know things? Firstly, never lose sight of the characteristics of economics as a science. Secondly, and as a consequence, acknowledging that, although there is a permanent recursive process between the theory and practice –the act of measuring in our case–, the "force of abstraction" (Marx, [1867], 1887, p. 6) is its origin.

The best ancient example is the work of Sir William Petty. According to Stone (1997, p. 30 and p. 31), Petty's *Verbum Sapienti*, published in 1665, constitutes "the first complete and consistent set of national accounts ever to have been made... a landmark in economic history". A few years later, Petty published his *Political Arithmetick, or A Discourse* ([1671], 1899, p. 244, Capital Letters in the original), in which he first proposed the use of data in economics:

The method I take to do this is not yet very usual, for instead of using only comparative and superlative Words and intellectual Arguments, I have taken the course... to express myself in Terms of Number, Weight or Measure; to use only Arguments of Sense, and to consider only such Causes, as have visible Foundations in Nature; leaving those that depend upon the mutable Minds, Opinions, Appetites, and Passions of particular Men, to the Considerations of others.

² Granger explains the different nature of deterministic and stochastic processes, and thus of the bricks (or the pieces of legos) of mathematics and statistics (2003, p.1): "One can begin with the ancient subject of Mathematics which is largely concerned with the discovery of relationships between deterministic variables using a rigorous argument. (A deterministic variable is one whose value is known with certainty.) However, by the middle of the last millennium it became clear that some objects were not deterministic, they had to be described with the use of probabilities, so that Mathematics grew a substantial sub-field known as 'Statistics'."

Marx ([1857], 1999, p. 27, our *italics*) also had words of praise for the same writer: “Petty regards himself as the founder of a *new science*... His audacious genius becomes evident, for instance... the father of English political economy”. Similarly, according to Hillinger (2007, p. 5): “It is no exaggeration to say that modern economics begins with measurement. This statement refers to William Petty and the ‘political arithmetic’ he created.”

Considering the aforementioned insights, we have to properly assess Petty’s method and, by extension, the recursive process between the theory and practice in economics –that is, to point out its limitation from an epistemological point of view to the extent *data* constitute a recreation based on theoretical understandings and, in second place, are the output of the utilisation of biased measuring instruments.

Measuring “with theory”

The Gross Domestic Product (GDP) equals the sum of the gross values added plus taxes on products net of subsidies. On its key component, we should highlight the following (European Commission et al., 2009, p. 95 and p. 103, our *italics*):

Value added represents the *contribution* of labour and capital to the production process... As value added is intended to measure the value created *by* a process of production, it ought to be measured *net* since the consumption of fixed capital is a cost of production.

A minor correction, value added is not created *by* but *during* the production process. Noticeably, this phrasing fails to differentiate neoclassical theories of production and distribution –which is saying something, but not only. It assumes the empirical validation of its distribution hypothesis, namely that marginal products determine the functional distribution of income.

Although it is trivial to define a mathematical function and to calculate its partial derivatives, Cobb and Douglas (1928) did not confuse the economic content under discussion. In other words, they did not merge the theories of production and distribution. Their seminal paper was narrowly entitled, *A Theory of Production*.³ In contrast, Sumner Slichter, the commentator assigned to discuss the paper during the meeting of the American Economic Association, weighted the arguments differently (Biddle, 2012, pp. 225-6):

Despite the fact that the marginal productivity theory was not explicitly mentioned in the paper, Slichter thought he could see a hidden agenda, and he did not approve: “Professors Cobb and Douglas conclude that it has been statistically demonstrated that the relationship between the agents of production on one hand and the volume of output on the other meets the requirements of the marginal productivity hypothesis.”

We should then distinguish the process of production, in which the value is created, from the process of circulation, in which it is realised through exchange and distributed through price fixing. The net

³ Just for the record, the Nobel Solow (1956, 1957) explicitly distinguished the sphere of production and the sphere of distribution. The processes of production and distribution, and also of consumption and exchange, are elegantly analysed, based on dialectical logic by Karl Marx [1857] in his *General Introduction to the Critique of Political Economy*.

value added compiled by the statistical agencies only reflects its *appropriation*, not its generation by the capital (sic) and labour, nor its distribution following the rule of marginal products –whether strictly applied or for example nuanced according to a post-Keynesian perspective.

No matter the route taken by statistical institutes in their attempt to estimate value added, “random” errors and biases occur in both, the sizes of which are unknown (Commission of the European Communities et al., 1993, p. 491):

As value added at constant prices is equal to the difference between output at constant prices and intermediate consumption at constant prices, it is affected by measurement errors in both series. Assuming that such errors are at least partly random, the errors will tend to be cumulative, making value added extremely sensitive to error... it may be better to abandon the attempt to measure value added as the difference between two series subject to error and to try to estimate the volume movements of value added directly using only one time series, i.e. a “single indicator” instead of double deflation. Although single indicators may be biased, they are much less sensitive to error.

All of the above assumes the availability of “adequate” price indices. The recommendation concerning the estimation of value added in net terms is not a neglected accounting detail but addresses the most relevant issue in economic science, namely the *generation of value* (European Commission et al., 2009, p. 34):

In principle, the concept of value added should exclude the allowance for the consumption of fixed capital. The latter, in effect, is not newly created value but a reduction in the value of previously created fixed assets when they are used up in the production process. Thus, theoretically, value added is a net concept.

Only labour creates (new) value; the rest of the inputs required during the production process –capital, energy, raw materials and services– merely transfer it. The mainstream theory willingly disregards the above to assert that physical capital also creates value, in accounting terms the operating surplus. In doing so, it prefers to acknowledge a fundamental theoretical weakness and a collateral damage, i.e. it negates its ability to distinguish the gross part from the net part of the value added (European Commission et al., 2009, p. 103 and p. 95):

Consumption of fixed capital is one of the most difficult items in the accounts to define conceptually and to estimate in practice... consumption of fixed capital can be difficult to measure in practice, and it may not always be possible to make a satisfactory estimate of its value and hence of net value added.

As hard as that is to admit it, the claim that physical capital creates (new) value once its gross value is deducted represents a non-scientific statement. By extension, the entirely NA system is contaminated by its “net aversion” and, as a result, the main variables and accounts are mismeasured, among others: intermediate consumptions and outputs (the input-output tables), the three approaches to domestic product, capital formation (capital account), and operating surplus (income account).

The *reliability* of data is characterised by three qualities: invariance, accuracy and precision (Boumans, 2007, p. 4).⁴ On this subject, Lequiller and Blades (2014, p. 39, *italics ours*) pointed out the following:

⁴ Boumans (2007, p. 4) clarifies: “The difference between invariance, accuracy and precision can be illustrated by an analogy of measurement with rifle shooting, where the bull’s eye represents the true value of x. A group of

National accounts could better be called “national accounts statistics” because, without this qualifier, users may think they are as reliable as the business accounts of a company. This is not true. In particular, while GDP for technical reasons is often expressed in millions of units of the national currency, users should be aware that they are very far from being accurate at the level of millions... Indeed, national accounts, particularly GDP, are not the result of a single big survey for which one might compile a confidence interval. They are the result of combining a complex mix of data from many sources, many of which require adjustment to put them into a national accounts database and which are further adjusted to improve coherence, often using *non-scientific methods*.

It may seem curious that the OECD publishes a textbook. We believe that its intention is to draw attention to the urgency of improving statistical practices to the extent that the fulfilment of its mission, the detection and dissemination of “effective” policies, requires much better data. While the last sentence of Lequiller and Blades (2014, p. 39) will be rejected by any agency, it must be profoundly disturbing to the reader.

Measuring without theory

Koopmans (1947) labelled Burns and Mitchell’s efforts to analyse the business cycle as “measurement without theory”. By the way, according to Hendry and Morgan (1996, p. 8), although Mitchell was regarded as one of the main exponents of quantitative economics in the early twentieth century, he did not adopt statistical ways of thinking; “Instead, he was an empiricist who adopted quantification as a natural tool for gleaning evidence in economics”.

The following quotation summarises Koopmans’ approach (1947, p. 162):

Fuller utilisation of the concepts and hypotheses of economic theory (in a sense described below) as a part of the processes of observation and measurement promises to be a shorter road, perhaps even the only possible road, to the understanding of cyclical fluctuations.

Around the measurement without theory debate, we find the labels used to describe economics as a science, i.e. power structures, competition for financing, and (human) egos. Again, citing Hendry and Morgan (1996, p. 69):

This was an intellectual argument between the Cowles Commission (where Koopmans was a senior research figure, soon to become Director) and the National Bureau of Economic Research (NBER), against a backdrop of both groups seeking funding for their work, the Cowles in theoretical econometrics and the NBER for applied economics.

shots is precise when the shots lie close together. A group of shots is accurate when it has its mean in the bull’s eye. When during the shooting the target remains stable this is a matter of invariance.”

The aim of the theory of index numbers is to propose “solutions” to the index number problem. Sydney N. Afriat (2005, p. 21), the “guru of price index” (Deaton, 2005, p. xvii), understands the problem we are dealing with as follows:

... the only authority for the present is the past. In early economics, the correct price or wage is simply the price or wage that has been settled by custom and has the value which, so far as anybody can remember, it has always had... Price indices express respect for that authority. They offer a kind of exchange rate between £s in different periods... A force acting on what a wage should be this year is what it was in some former year converted into this year's £s. Sums today are measured by a yardstick which has reference to the past. The ‘index number problem’ can be understood as the problem of fashioning such a yardstick.

Currently, there are two competing calibrating instruments to conceptualise the CPI (Guerrero, 2017). The first one is based on a sort of simplistic view of the CPI as a fixed basket of products priced in successive periods, i.e. a cost of goods index (COGI). In this regard the European Central Bank on its website states that:

Conceptually, the Harmonised Index of Consumer Prices is a Laspeyres-type price index rather than a cost-of-living index. Nevertheless, the HICP is not a strict fixed-basket index. It measures the development of prices over time for fixed “consumption segments”, sets of consumer expenditures that serve a common purpose. Although these consumption segments are fixed, the specific products that are included in particular segments may change over time. In other words, certain items may exit the basket, and new ones may enter as they become relevant to household consumption expenditure. In any case, the conceptual differences between the two types of price indexes do not generally lead to substantial differences in practice.

Extending Arrow (1958, p. 78), we would say that the COGI approach merely shows a “banal tautology” analogous to “national income is that which is measured by national income statisticians”. The second calibrating instrument, the so-called (Konüs) Cost of Living Index (COLI), is based on a microeconomic orthodox point of view, according to which a CPI measures the change in expenditures a household would have to make in order to maintain a given standard of living.

To minimise criticism regarding potential errors and biases, statistical authorities around the world embrace a COGI approach. On this subject, the following quotation is blunt (International Labour Organization et al., 2004, chapter 11, p. 13):

Statistical agencies have been reluctant to provide their own estimates of CPI bias. In some cases, they have accepted the existence of substitution bias, recognising that the use of a Laspeyres formula implies that the CPI usually will overstate price change relative to a cost of living index. Statistical agencies have, however, been reluctant to draw even qualitative conclusions from fragmentary and speculative evidence on quality change, new products and new outlet bias.

The political content of the acronym should be obvious; suffice it to recall the title of the seminal paper written by Prais (1959), *Whose cost of living?* Regrettably, the replacement of the acronym was due to a personal vendetta (Persky, 1998, p. 204):

However, the Mitchell committee did recommend that the name of the “Cost of Living Index” be changed, arguing that an index of prices couldn’t fully reflect changes in welfare (Davis, 1944, p. 23), and as a result, the Bureau of Labor Statistics renamed its series as a “Consumer Price Index”.

A COGI conceptualisation of the CPI involves a measurement without theory. On the other hand, the COLI assessment should be revisited considering the criticisms regarding the comparison and aggregation of utility levels (Persky, 1998, p. 203) or the pointlessness of the assumption of identical preferences (Deaton, 1998, p. 44) among other theoretical issues. Moreover, the measurements obtained with the selected measuring instruments reinforce the theoretical beliefs at stake. Any price index is a weighted *average* of price indices. Thus, by definition, it eliminates their dispersion, creating an illusion concerning the existence of a unique price for each good and of a single price level for the economy as a whole (Guerrero, 2021).

Lastly, we will accompany our arguments by quoting Fisher (1922) and Afrait (2005). On the page 2 of his book, Fisher (1922) wrote:

There would be no difficulty in such measurement and, hence, no need for index numbers if all prices moved up in perfect unison or down in perfect unison. But since, in actual fact, the prices of different articles move very differently, we must employ some sort of compromise or average of their divergent movements.

Afrait’s following words are dedicated to devotees of economic theories (2005, p. xxiv):

It should no longer be plausible, even to convinced “price level” believers, that the whole situation can be effectively summarised by a single number.

The “guru of price index” is right. The price level exists only in the imagination of economists. As scientists, it is time to look at ourselves critically.

Final thoughts

The main statistical measurement problems discussed here are present in the official data produced in any country and, accordingly, have been frequently analysed by insiders and outsiders –some of my favourites are Moulton (2018) and Kokoski (2013). The one we will explore now is rather theoretical in nature.

The axiomatic imposition of equilibrium (Arnsperger and Varoufakis, 2022 p. 23) forces statistical makers, in order to have not a dollar left over or missing, to use non-scientific methods. As the more visible case, let us recall the GDP, in which case the measurement by the three approaches yields the same numerical result, and an arithmetic difference is called “statistical discrepancy”.

To avoid applying non-scientific methods, firstly, agencies should post the data with the minimum adjustments, even if the equations at stake are not met. Secondly, share the adjusted data with users step by step. Simultaneously, authorities must document every decision made to build the final version of the NA. *As simple as that*. This would mean that the compilation of the system would cease to be an *ad hoc* construction and just as important, if not more important, would imply an improved approximation to the issue at stake.

In the introduction, we mention that the GDP constitutes a measurement “with theory” exercise, but, as a Marxist economist, I have to underline that only labour creates (new) value. The point being made here is straightforward: the aforementioned acknowledgement written in the *Handbook* (“Consumption of fixed capital is one of the most difficult items in the accounts to define conceptually and to estimate in practice”) shows the weakness of the theory of value that underpins the measurement of value added. Its difficulty in distinguishing between net and gross contaminates a number of key variables, including, once again, domestic product, national income, operating surplus, and fixed capital formation, etc. In this sense, our recommendation would be for agencies to report, as a first choice, the variables at play in net terms.

To close, let us now look at measurement as our *object of study*. To understand why in the sciences, among others in economics, measurement appears as an *obsession* (from the Latin *obsessio*, that is, siege), we will quote Karl Marx ([1857-61], 1973, p. 624 and p. 625):

The exchange of living labour for objectified labour, i.e. the positing of social labour in the form of the contradiction of capital and wage labour, is the ultimate development of the value-relation and of production resting on value. Its presupposition is, and remains, the mass of direct labour time, the quantity of labour employed, as the determinant factor in the production of wealth. But to the degree that large industry develops, the creation of real wealth comes to depend less on labour time and on the amount of labour employed than on the power of the agencies set in motion during labour time, whose ‘powerful effectiveness’ is itself in turn out of all proportion to the direct labour time spent on their production. However, it depends rather on the general state of science and on the progress of technology or the application of this science to production.

As soon as labour in the direct form has ceased to be the great well-spring of wealth, labour time ceases and must cease to be its measure, and hence exchange value [must cease to be the measure] of use value. The surplus labour of the mass has ceased to be the condition for the development of general wealth, just as the non-labour of the few, for the development of the general powers of the human head. With that, production based on exchange value breaks down, and the direct, material production process is stripped of the form of penury and antithesis. The free development of individualities, and hence not the reduction of necessary labour time to posit surplus labour, but rather the general reduction of the necessary labour of society to a minimum, which then corresponds to the artistic, scientific, etc. development of the individuals in the time set free, and with the means created, for all of them.

In short, although measurement is consubstantial to our market “society”, that is, it expresses a transhistorical need, under capitalism it is incongruous (Echeverría, [1986], 2017, p. 136), since it is based on “the impurity or concreteness of the magnitude ‘price’,” and not on the “purity or abstraction of the magnitude ‘value’.”

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Enlightenment Epistemology and the Climate Crisis

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Introduction

At first glance, it appears that industrialization, with its rampant overproduction and overconsumption, stands as the primary antagonist in our climate crisis narrative. However, this surface-level perception overlooks a more profound shift that lies beneath: an epistemological revolution birthed in the European Enlightenment. This era marked a pivotal transition in our relationship with the planet, from Mother Earth to a dead machine. Turbayne (1962) explores the significance in the change of metaphor in depth. This essay seeks to unravel this transformation in thought and its subsequent paving of the road to our current environmental challenges. Our solution lies not in mere technological or policy changes but in a fundamental revolution in thought—a revolution that reclaims the roles of heart, soul, and lived experience in shaping our knowledge. By embracing these often-neglected dimensions, we can forge a path towards a more harmonious interaction with our world, addressing the root causes of the climate crisis.

Historical Context of the Enlightenment

The genesis of the European Enlightenment can be traced back to the religious wars that ravaged Europe, a turbulent period that starkly illuminated the limitations of theology as the sole foundation for social and political theory. This era of conflict laid bare the urgent need for a new basis upon which to construct societal norms and governance—one that could transcend sectarian divides and offer a stable, peaceful coexistence. This necessity birthed an intellectual revolution, a move away from the scholastic tradition which had long intertwined social theory with biblical teachings. In this historical crucible, the Enlightenment emerged as a bold response, a movement that endeavored to redefine the very foundations of knowledge. Scholasticism, with its deep roots in religious doctrine, was set aside in favor of a new approach that sought to build knowledge from ground up, free from theological underpinnings. This marked a radical shift from a world view deeply imbued with religious interpretations to one anchored in secularism. Faced with the challenge of constructing a body of knowledge devoid of these traditional foundations, Enlightenment thinkers turned to observable facts and logic as their new cornerstones. This was a decisive step, an attempt to create a universal framework of understanding that relied solely on empirical evidence and rational deduction (see Zalta (2017) for an overview). It was a move towards a world view that prized objective reality, measurable and quantifiable, over the subjective realms of intuition, emotion, and lived experience.

The Crisis of Knowledge and Enlightenment's Limitations

Our current environmental predicament is fundamentally a crisis of knowledge, rooted in the Enlightenment's narrow conceptualization of epistemology. This shift fostered an illusion of objectivity that has since permeated our understanding of the world, particularly in the context of societal dynamics. The Enlightenment's emphasis on objective knowledge marginalized the subjective realms of emotional intelligence, moral intuition, and diverse lived experiences. This exclusion led to a worldview that erroneously equates scientific rationality with absolute truth, consequently overlooking the multifaceted and nuanced nature of human experience and its interaction with the environment. See Zaman (2015) for a detailed discussion of the deification of science.

To truly integrate heart, soul, and lived experiences into our understanding of the world, we must challenge the very notion of objective knowledge as the sole arbiter of truth, especially in the realm of social sciences. For example, Berger and Luckmann (1966) have argued that truth is a social construct. Society, when viewed as a collective of lived experiences, presents a spectrum of realities, all equally valid yet inherently diverse. This perspective acknowledges that what is considered 'objective' often reflects dominant narratives, sidelining alternative ways of experiencing and understanding the world. By embracing this multiplicity of truths, we open ourselves to a richer, more inclusive understanding of our environment and our place within it. Such a shift in perspective is crucial for addressing the environmental challenges we face, as it fosters a deeper, empathetic connection with the planet and its diverse inhabitants, moving beyond the exploitation and detachment engendered by the Enlightenment's limited view.

Integrating a Multifaceted Understanding of Knowledge

The challenge of rectifying our strained relationship with the environment calls for a nuanced and multifaceted understanding of knowledge. Moving beyond the Enlightenment's legacy of objective empiricism, we must embrace an epistemological approach that values the subjective, the intuitive, and the emotional as legitimate sources of wisdom. This broader view of knowledge transcends the simplistic binary of right and wrong, opening up space for a spectrum of experiences and perspectives that reflect the complex reality of human existence.

In practical terms, this means recognizing and valuing diverse cultural narratives and indigenous wisdoms that have long maintained a harmonious relationship with nature. These perspectives offer invaluable insights into sustainable living and environmental stewardship, having evolved through centuries of deep, lived interaction with the natural world. By integrating these varied sources of knowledge, we can develop more effective and context-sensitive environmental policies and practices. Senturk et. al. (2020) provide a multiplex epistemological framework, suitable for exploring multiple layers of validity and diversity.

Moreover, this expanded understanding of knowledge encourages the cultivation of empathy and a sense of interconnectedness with all forms of life. It promotes a worldview where environmental responsibility is not just a scientific or economic consideration, but a moral imperative rooted in a deep appreciation of our shared existence on this planet. This shift is crucial for building a future where human activities are in balance with the Earth's ecosystems, ensuring the well-being of both current and future generations.

Redefining Environmental Engagement and Education

The imperative to reconstruct our knowledge for environmental harmony necessitates a radical rethinking of how we engage with and educate about the environment. This new approach calls for a synergistic integration of scientific understanding with philosophical, ethical, and emotional insights, breaking away from the confines of Enlightenment's rigid objectivity. This interdisciplinary blend is key to developing a comprehensive view of environmental issues, one that recognizes the complexity and interdependence of natural systems. Spash (2024) provides a detailed discussion.

In this context, environmental education transcends traditional scientific curricula, encompassing a broader spectrum that includes ethical considerations, cultural narratives, and emotional connections to the natural world. Such an inclusive educational approach equips individuals with a deeper, more empathetic understanding of environmental issues, fostering a sense of responsibility and stewardship. Policy-making too must reflect this shift in perspective. Instead of purely utilitarian approaches, policies need to account for the diverse experiences and needs of different communities, ensuring that environmental solutions are equitable and culturally sensitive. This means prioritizing long-term ecological balance over short-term economic gains and acknowledging the intrinsic value of the natural world beyond its utilitarian benefits. Zaman (2021) provides more extensive discussion.

By embracing this expanded framework of knowledge, we pave the way for more holistic and sustainable environmental practices. It's about nurturing a global community that not only understands the scientific aspects of climate change but also feels a deep, emotional connection to our planet, inspiring collective action towards preserving and cherishing our shared home.

Conclusion

In summary, the climate crisis extends beyond the realms of industrialization and technological advancements; it is fundamentally an epistemological crisis born from the Enlightenment's limited perspective on knowledge. Our challenge is to shift from a purely empirical and rational understanding of the world to one that richly integrates the emotional, the spiritual, and the subjective. This holistic approach, recognizing multiple truths and diverse perspectives, draws on both Enlightenment rationality and post-modern insights. See Zaman (2019) for one approach.

The practical implications of this paradigm shift are profound and far-reaching. It calls for an approach to environmental activism and education that combines scientific knowledge with emotional resonance, as exemplified by figures like Greta Thunberg. Her ability to connect with the public on an emotional level, while underscoring the scientific realities of climate change, embodies the synthesis of heart and science that is crucial for effective environmental advocacy.

As we reconceptualize our place in the natural world, our goal is not to conquer, but to steward. It's about creating a future where our actions are informed by a deep understanding of and connection to the planet, fostering a global community motivated by a shared responsibility for its well-being. This epistemological shift promises a future where the health of our planet and its inhabitants is woven into the very fabric of our knowledge and existence, inspiring collective actions toward a sustainable and harmonious coexistence.

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Fabulous Macroeconomics

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The state of macroeconomics has come in for criticism since the great recession of 2008 which was not expected by most economists and was, indeed, impossible according to an influential class of economic models.

Two sets of criticism may be distinguished. One refers to the scope of the subject and its neglect of aspects of social welfare. The second set addresses methodology. Examples of the latter are Solow (2008) and a more nuanced appreciation by Blanchard in the same year. More radical denunciations were made by Skidelsky (2011), the biographer of Keynes. Of course, others sprang to the defence of the discipline and its dominant schools¹. There was a brief flurry of interest in unorthodox economists like Hyman Minsky after the financial crisis that triggered the recession, since his work predicted the likelihood of such events. Government also resorted to Keynesian budgetary expansion measures. Both the interest and the measures were, however, generally short-lived and orthodoxy in both doctrine and policy was broadly re-established. Subsequently there has been a period of low growth and low inflation by historical standards until the shocks of the Covid epidemic and the Ukraine war and associated effects on gas and oil prices.

This article does not dismiss other concerns but addresses only the second area of criticism, methodology. It argues there are two conspicuous symptoms of an underlying malaise.

1. The leading edge detaches from the rest of the hydrofoil.

There is a large apparent breach between what is written by top academics in learned journals and taught to graduate students and the working hypotheses and practices of the majority of practitioners, economists working in government departments, public bodies, corporations or financial institutions. The academics remain committed to the development of representative agent models where the economy is analysed “as if” it is a single representative consumer, a single private company (the producer) and the government or monetary authority. The private consumer and producer share consistent expectations of the future. Moreover, these are correct up to a white-noise error process. That means errors are never of the sort that make people learn or change their mind². Given this set-up people are able confidently to optimize consumption or profits over the far future. Consumers know their “bequest motive” estimate their lifetime income, know their rate of time preference and the interest

¹ E.g. Reis (2018)

² A faithful characterization at least of the behaviour of some economists but a crazy assumption all the same. See Hendry and Mizon (2014)

rate so launch a dynamic programme optimizing consumption over their lifetime. Producers are equally clairvoyant.

These assumptions abolish all the co-ordination issues and failures that are the traditional subject of macroeconomics and mean the economy is in a continuous equilibrium, disturbed only by exogenous shocks of an unspecified nature. These shocks, however, are generally well-behaved “white noise”. The economy exists in a state of “dynamic stochastic general equilibrium”. That cannot be affected by any systematic government action, which has already been anticipated by the private sector. The government can affect output only by “surprises”. These are allowed to have a temporary effect because of a gap in the information sets of consumers – they cannot tell a general inflation from an increase in their own income. That gives rise to the Lucas supply function³.

Most observers would characterize the real situation as follows: people are told the inflation rate every month; they can read it in the news media where it gets adequate publicity. Moreover, they go to the supermarket and should be able to tell whether their income is going further or not. For the most part they do not understand how the economy works in any detail (in common with economists) and they certainly cannot foretell the future with only white-noise errors. In modelling by assuming the precise contrary on every count we would appear to be going through the looking glass. It is no wonder that we end up in Wonderland.

Evidently models of this kind are no help to practitioners in understanding and forecasting the vagaries of the business scene (or “cycle” as it is inaccurately known). They persist in believing and acting as if markets can generate endogenous oscillations and governments can and do influence output and inflation, certainly not always for the better.

To be fair to academia, it has realized that the pure DSGE model is incapable of explaining observable phenomena so they have introduced numerous amendments, known, oddly, as “imperfections” in the model. Long-term nominal contracts, other labour market frictions, imperfection in credit markets, all these and more are prayed in aid and, either rigorously or more usually ad hoc, introduced into the model, generating lags that mean it can be represented as fitting the data. Most central banks have a modified DSGE model of this kind⁴.

Yet the “great split” persists because the models are restricted by the tightness of their specification from incorporating a host of available data. Data on expectations, for example, are inadmissible in an RE model. Central banks therefore have a DSGE model and a plethora of relevant data from surveys, detailed national accounts or financial markets that is assessed judgmentally. They claim to look at both but it would be unsurprising if the informal data took precedence.

Practitioners in general certainly look at the full range of data and make their guesses based on the evidence and their intuition, which is usually shaped by earlier generations of economic models be they Austro-Schumpeterian, Keynesian or Monetarist. This does not seem entirely healthy. A harsh verdict would be that the practitioners have been deserted by the leading edge which is more interested in exploring the properties of imaginary worlds than in analysing this one.

³ Lucas (1972)

⁴ These modified models are often referred to as “New Keynesian”, presumably because the dead cannot sue for defamation. The representative agent construct defies the rules of aggregation; strictly it is appropriate only if everyone is identical. Some of the refinements rely on acknowledging that people are diverse. The construct is therefore often intellectually incoherent.

2. *Making weather forecasters look respectable* ⁵

An IMF study has shown that the standard of economic forecasts is poor with a particular inability to foresee recessions⁶. Indeed, my impression is that there has been no improvement in the forecasting ability of institutions and their economic models in half a century.

Many would argue that of course forecasts are impossible (while building RE models!) and this is not a test of the usefulness of theory, which is about explanation (“as if?”). Milton Friedman was not so evasive and held that models should be judged by their predictive power.⁷

The failure is all the more striking when you consider the context. Standardised national accounts were launched in 1960, though a few countries had accounts going back to the 1950s. In 1975 someone at the OECD would have been trying to make sense of 15 annual or 30 semi-annual observations of trending, collinear data. There was no obvious way to discriminate between theories. Now fifty years later there are hundreds of observations of quarterly national accounts, numerous surveys of consumer confidence, investment intentions, purchasing managers expectations, etc. produced by private and public bodies. There is also a mass of financial data, including on derivatives from which information can be extracted on expectations and attitudes to risk.

Moreover, a high-specification lap-top now offers greater computing power than the mainframe computers in use at organisations like the OECD 50 years ago, access to which was shared by dozens of analysts.

Finally econometrics has made considerable strides in 50 years. No longer is it acceptable to blithely run regressions on non-stationary data, make a “specification search” and then pretend the statistics of significance are meaningful. Now we can tell spurious from real correlations by co-integration and vector co-integration tests; we can combine those with vector autoregressions to encompass and test causal models for data consistency. We have tests for breaks in the data generating process, for weak and strong exogeneity and if we have unobservable variables we can use recursive estimation techniques like Kalman filters.

Yet with immensely more data, more computing power and much better statistical resources our forecasting has hardly improved, if at all. It is hard not to blame macroeconomic theory for this stagnation.

And those refined econometric techniques tend to confirm the indictment. Katerina Juselius has used cointegrated VARs to test both pure REH models and the “new-Keynesian” variants. Her conclusions are stark: “our CVAR results have consistently rejected mainstream macroeconomic models – also the new-Keynesian ones - but have been supportive of more traditional Keynesian models”.⁸ In the United States, Stock and Watson adopted a technique for examining the effects of many more variables than a DSGE model can readily accommodate. They used a combination of factor analysis to reduce the

⁵ The joke originates with J.K. Galbraith, who reportedly said “The only function of economic forecasting is to make astrology look respectable”.

⁶ An, Z, Jalles J T and Loungani (2018)

⁷ Friedman (1953)

⁸ Juselius (2023) gives many additional references

dimensionality of the data set and VAR. (FAVAR). They too found results incompatible with much orthodox theory but which seem to accord with experience in the post-2008 era⁹.

Why have we not done better?

I believe there are several reasons for the sterility of macroeconomics in recent decades but one predominates. There has been a consistent failure from 1936 and the General Theory onwards to separate the “is” from the “ought”. Economics is about the organization of an important set of social relations, about how they should be organized and managed. As such the subject is political. Economists can range from extreme libertarians to socialists. It is inevitable and appropriate that ideological debates should rage. They have not done so openly, however. Instead, ideological propositions have gone underground and re-emerged masquerading as analysis.

Nearly all macroeconomic theories are best viewed not as attempts at scientific elucidation but as exercises in persuasion. They are a series of Aesopean fables, catchy and with a clear moral but not primarily concerned about real-world verisimilitude.

The main focus of debate has been about the role of government. For forty years from 1936 the tide was overwhelmingly for more government. Keynes was desperate to see unemployment down from 15 per cent to 5 so he told a story that gave the government licence to do it using state deficits¹⁰. After the second world war governments used these techniques to get unemployment down from -not to! - 5 per cent. Harrod and Domar and Nicholas Kaldor also piled in with models implying governments needed to be busy. These models were mental constructs based on “stylized facts” a code-term for “no real data”. The American Keynesians came in with Kennedy and successfully raised the growth rate from 2 per cent to 4 and inflation from 2 to 4 as well. Then the US decided to introduce a rudimentary welfare state (The Great Society measures) and fight the Vietnam war without raising taxes. The world was flooded with dollars, the dollar exchange system broke down and general floating of exchange rates removed a price peg. Inflation crept up everywhere, hugely magnified by the oil-price shocks of 1974 and 1979.

The tide turned. The problem was no longer perceived as unemployment occasioned by the instability of the market economy but as inflation occasioned by government excess. The focus of models shifted to demonstrating that governments could do no good by attempting to steer the economy and should leave it alone.

A forensic approach would have said: Keynesian theory does not tell us when employment is “full”. Moreover, Phillips curves are very unstable and cannot be used to choose the unemployment rate consistent with acceptable inflation. Attempting to smooth routine fluctuations in economic activity (other than via automatic stabilisers) is more likely to be destabilising given the inside and outside lags in fiscal policy so don’t attempt it. Keep it for a real recession if one eventuates. Moreover Keynesians had no theory of inflation at full employment¹¹ and often resorted to wage-price controls, which tended to work only in small countries like Austria and the Netherlands.

⁹ Stock and Watson (2005) see also commentary by Blanchard (ibid)

¹⁰ Keynes himself said economics was “a moral science and not a natural science” and was suspicious of the efforts of Tinbergen and others to give it statistical corroboration.

¹¹ As noted by Kalecki in 1943, who predicted “political” business cycles to discipline workers and control inflation.

However, remember persuasion is the game and the foregoing message is not strong enough. Instead governments were told fiscal policy is wholly ineffective unless accommodated by monetary policy so don't use it for stabilization ever; leave that to monetary policy. Moreover, you can't influence unemployment with macro policy; any deviation from a unique "natural" unemployment rate (NAIRU) will lead to accelerating or decelerating inflation. Over-egg that pudding and the next stop is the Weimar republic. The sole purpose of monetary policy should be to control inflation, which it can easily do.

Friedman and Phelps were highly successful with those models that helped to change the policy climate and that was no doubt salutary. But it is important to notice that neither model has much empirical justification as Gordon, among others, pointed out¹². Fiscal policy can work as was established in 2008 and again by Biden recently. While monetary control has turned out to be complicated. And all attempts to find a NAIRU empirically were abject failures. It turned out to be no more stable than the Phillips curve it replaced. Moreover, no OECD government has ever induced a Weimar inflation with excessively expansionary policy. Indeed, they need severe terms-of-trade shocks to get inflation into double digits. We haven't seen double digits without such a shock. The accelerationist model is not particularly plausible and a safe inference is a unique NAIRU does not exist¹³. It joins the neutrality of money and Rstar as artefacts in persuasive models that have no correspondents in actual data¹⁴. They are invariants in our minds but not in reality.

The get-the-government-out tendency has persisted to the present day. Kydland and Prescott told governments everyone knew they would renege on pledges so monetary policy should be left to a central bank whose officers didn't need to seek election. The tendency reached its apogee with Robert Lucas and the New Business Cycle Models, which implied that governments could never do anything except create temporary instability. Lucas hardly bothered to disguise his intention. He said "I'm not sure whether you will take this as a confession or a boast, but we are basically story-tellers, creators of make-believe economic systems."¹⁵ If the moral is right, who cares if the story reflects reality?

The fear of public sector failure and the distorted incentives facing democratic politicians is a wholly reasonable concern. A good product of this fear has been institutional reforms, like the creation of "wise men" oversight bodies, like the Office of Budget Responsibility in the UK, and the increased independence of central banks in OECD countries. A bad product has been the distortion of economic theory via models that are designed to make a point, facilitated by a highly tendentious approach to data. These theories have rendered stabilization policy severely inefficient; witness "quantitative easing"¹⁶.

¹² Gordon (2018)

¹³ See [Klein](#) 2017

¹⁴ Davies (2016) takes an indulgent view of RStar but his graphs reveal a will o'the wisp. The "Taylor rule" is too simple. There is surely no single rate which balances the economy but a whole loosely- articulated structure of rates. Many such structures may be compatible with different macro balances, and none is uniquely determined by the policy rate.

¹⁵ Lucas (2011)

¹⁶ The Bank of England, for example, bought bonds creating over £800 billion of excess bank reserves in an effort to stave off a feared deflation. It distorted asset prices but had little perceptible effect on the "real" economy or prices of goods and services. A phone call to the Finance Minister offering an overdraft for expanding the public deficit by an extra 1 per cent of GDP would have generated £20-30 billion of excess reserves and surely had more effect on nominal GDP. Distorting asset markets and increasing the public's debt service bill is considered less heinous than even limited, central-bank controlled, monetary finance of the government deficit.

For one feature of contemporary economic policy making, however, economic theory cannot be blamed. Most economic theory does not sanction the use of monetary policy for fine-tuning economic fluctuations, real or nominal. Yet that is where we have somehow ended up, with the risible spectacle of commentators blaming central banks for the surge of inflation after the outbreak of Covid and war in Ukraine – a surge to which they did not really contribute and were utterly powerless to prevent. Fine tuning with monetary policy is an even more futile exercise than attempting it with fiscal policy. It follows that central banks cannot be held responsible for year to year fluctuations in nominal GDP, only for sustained multi-year tendencies in inflation contrary to government-set targets.

Is there hope?

It would be nice to think economics can become more empirical and study what people do, rather than assume they do what is convenient from the ideological perspective of one's armchair. Then the relative perils of market instability and government failure could be assessed empirically and debated ad hoc rather than via competing fables. More exacting empirical tests and standards would help and a readiness to grapple with complexity rather than keeping it (too) simple to make a point. Andy Haldane's Shackle lecture of 2016 referring to so-called Agent Based models points one promising way ahead. Accept the complexity and simulate it without getting hung up on neat "solutions" or "equilibrium". You have never seen an economic equilibrium, Pareto-efficient or otherwise, and my advice is don't hold your breath. So why should economics assume they are ubiquitous? Economic activity consists of processes, adapting with procedural rationality¹⁷ and unfolding through historical time against a background of constant change and great uncertainty. We need to study and simulate those processes and not attempt to replace them in our analysis with the first order conditions required for a fictitious and tendentious equilibrium.

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¹⁷ Procedural rationality as opposed to substantive rationality (i.e. omniscience) was the distinction and research proposal of Herbert Simon in his great works *Models of Man* and *The Sciences of the Artificial*, which charted the road not taken in macroeconomics but had a formative influence in psychology and on AI studies (both of which have made more progress than macro).

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A Tour of the Jevons Paradox. How Energy Efficiency Backfires

Blair Fix

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Abstract

According to mainstream thinking, efficiency is a potent tool for conservation — a way to live better while using fewer resources. Unfortunately, this simple narrative is contradicted by overwhelming evidence. Instead of spurring conservation, efficiency seems to stimulate the consumption of *more* resources. This paper surveys the evidence for efficiency backfire and concludes that efficiency is a general tool for catalyzing technological sprawl.

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A Debtor Countries Club?

The Cartagena Consensus reloaded

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Abstract

This article addresses both the need for and the complexities involved in the organization of a club of debtor countries in Latin America and the Caribbean. It begins by explaining that sovereign debt crises are originated and managed in an asymmetric international scenario, which helps understand the scant progress that has been made in terms of coordination among debtor countries. This is followed by a description of the collective action problems that a possible coordination of sovereign debtors would entail, and then a description of the historical experiences of coordinated debtor countries -and possible lessons to be learned-, focusing on the efforts made with the so-called Cartagena Consensus. Some coordination efforts made in Africa are also presented. The article describes the current debt situation in the region and postulates that higher levels of coordination among debtor States would be conducive to facilitating the conditions for their development. Finally, it explains why concerted debtor States' efforts to negotiate with their creditors would challenge neo-liberal paradigms, based on a remarkable asymmetry between sovereigns deeply indebted and going through financial turbulences, and their creditors; as well as on an absolutist view of the principle *pacta sunt servanda* ("agreements must be kept") in financial affairs.

1. Introduction

Why is it that while creditors negotiate in a concerted manner with borrower States, the latter do not similarly form debtor clubs? What are the collective action problems faced by debtor States? Have there been any experiences -albeit unsuccessful- in Latin America and the Caribbean (hereinafter, LAC) and in the world involving efforts to form articulated networks of sovereign debtors in order to negotiate their debts in a coordinated manner? What lessons can be learned from historical experiences, especially from the Cartagena Consensus, that can be useful in devising strategies for concerted action among debtor States in the region in the current financial and political context that be able to challenge neo-liberal paradigms? These are the questions that this articles proposes to address.

The opportunity to reinstate the debates on initiatives for concerted action by debtor States in the LAC in order to negotiate in an articulated manner with creditors is given by the current circumstances themselves. From 2008 onwards, public debt grew at the international level, at the mercy of the monetary expansion policies of the central countries: at the time of the outbreak of the pandemic crisis,

public debt was already at record levels (Cantamutto and Castiglioni, 2021). In turn, debt in the region has grown systematically over the last decade, reaching a peak during the pandemic and showing no signs of a significant reduction since then. If this trend applies, in general, to peripheral countries, it is especially problematic in LAC which, in the decade ending in 2023, will have grown less than in the so-called “lost decade” of the 1980s (ECLAC, 2023a). LAC is the region with the second highest levels of debt, behind the so-called emerging Asian countries (ECLAC, 2023a).

Debt functions, in fact, as a mechanism that sustains and consolidates the subordination of debtor countries, and is determined by the positions and interests of creditor countries' economies. Debt allows placing surplus capital in very profitable placements, since the interest charges the debtors for the perceived risk, which is evident from the fact that risk premiums are not returned to the debtors even when they have proved to be excellent payers (Pahnecke and Bohoslavsky, 2021). In trying to meet debt payments, debtor countries often jeopardize their ability to meet other social investment obligations (in education, health, housing, etc.). New loans to meet previous debts are often granted against the implementation of neo-liberal reforms.

Another feature of neoliberal finance is the absolutist view of the principle *pacta sunt servanda* (“agreements must be kept”), where even when repaying debts entails eroding fiscal space to the point that gross violations of economic and social rights take place in the given country, debt can still be regarded as “sustainable,” which is translated into a fierce reluctance of creditor to grant debt relief to distressed countries.

Public debt is a historical problem, linking the peripheral countries - or those of the global South - asymmetrically with the central countries - of the global North (Wade, 2020). It is an asymmetric international scenario (Guzmán, Colodenco and Wiendenbrug, 2024), a system (Toussaint, 2018) in which there is no comprehensive resolution mechanism in case of public debt payment difficulties. Guiding principles on human rights-respectful restructurings have been proposed and approved within United Nations (UN) political bodies (General Assembly and Human Rights Council), but their implementation is still far from being a reality. Creditors do not accept democratic forums to deal with debt negotiation processes (Pettifor, 2002). The lack of a pre-established and uniform mechanism leads to negotiation on a case-by-case basis, in a clear asymmetry of power, where creditors manage credit portfolios that are often greater than the productive capacity of debtor countries (Munevar, 2021). It is precisely in the separate treatment of sovereign debtors that creditors maximize their capacity to exert pressure.

But not only that. States' creditors often coordinate among themselves to negotiate with their debtors. The Paris Club (bilateral creditors), the London Club (and the rest of the numerous private creditors' committees), as well as the tandem assumed in practice by the Bretton Woods institutions, epitomize the organization of creditors vis-à-vis common sovereign debtors. The rationale of a cooperative approach (Shubik, 1996) between creditors vis-à-vis common State debtors is obvious: the negotiating position vis-à-vis debtors is strengthened, improving the prospects of enforcing debt on the debtors' assets and imposing conditionalities on debtor countries. In general, the aim is to prevent a creditor from obtaining privileges at the expense of others, which could lead to a negotiation in which the debtor makes its interests prevail in a negotiation by parties.

In theory, in order to aspire to a strengthening of their bargaining power, which could counterbalance the capacity of creditors, a certain level of concerted action should be expected from debtor States to negotiate with common creditors. Coordinated action among debtors could work as a reflection of the concentrated power of creditors: avoiding partial bilateral concessions (in the interest of creditors), in order to obtain more beneficial solutions multilaterally. If a debtor country refuses to comply with its

creditors' demands, it may be threatened with sanctions; if debtors who refuse to comply are many, such sanctions become less credible. However, the politico-financial history of sovereign debtors indicates, strikingly, that coordination practices among sovereign debtors have been very scarce¹.

Following this introductory section, Section 2 describes the collective action problems involved in the coordination of sovereign debtors. Section 3 presents historical experiences in this regard, focusing on efforts in Latin America, especially with the Cartagena Consensus, and some more limited initiatives in Africa. Section 4 postulates how greater levels of coordination among countries would be conducive to facilitating the conditions for their development, explaining the challenges and opportunities that exist today for collective action by debtor countries in LAC. Section 5 contains a recapitulation of the discussions raised in this article.

2. Collective action problems in sovereign debtor concertation

Both theory and practice indicate that the collective action problems faced by debtor clubs are remarkable: a) debtors often have disparate economic and political situations and ties with creditors; b) internal disputes and interests may inhibit the “real” interest in joining a debtor club and; c) given the power of creditors, the threat of sanctions and the offer of concessions generate incentives for free-riding debtor States (Rama Iglesias and Schultz, 2015). In general, debtor countries face a prisoner’s dilemma in relation to coordination with other debtors, whereby the common solution -which would be optimal, but would result only from collective action- is displaced by the possibility of having partial concessions -suboptimal, but within the reach of each country separately- (O'Donnell, 1987). This leads to the expectation that a debtor country will act as the daring (and potential loser, or sucker), betting on making a profit in a sort of “game of chicken” with creditors. In this gamble, of course, individual debtors bear the odds against them, even if the debtor has a high relative weight (O'Donnell, 1987).

If a country tries to initiate a coordinated negotiation process with other debtors on its own, the other debtor countries will be tempted to abandon the effort in view of the prospect of obtaining partial concessions (side payments) from the creditors (free riders). Thus, the reputational cost (expressed in higher refinancing costs, shorter terms, etc.) as well as the potential sanctions (interruption of access to international cooperation funds or development bank financing, loss of commercial markets, etc.) fall on the country that “plays the game”, the one that shows the most determination. The rest operate with a logic of “credit-rating-self-preservation”, avoiding association with “badly behaved” partners and thus being in a better comparative risk position (Cline, 1983; Tussie, 1988).

The main advantage of a joint approach to the problem for debtor countries is the possibility of obtaining better restructuring terms, such as lower interest rates, lower costs and charges, longer terms and grace periods, than those that could be obtained bilaterally. It could also be hoped that creditors will recognize common criteria for the definition of restructuring terms, for example, that debtor countries cannot be required to pay more than a certain proportion of their export revenues or allow payments to fluctuate according to the growth of the economy. To this end, the implicit threat of collective default that could be generated is recognized as the main instrument (CIA, 1986), although this could well be formulated explicitly. Even the exchange of legal and technical information between

¹ While the cooperative experiences of debtor States have been extremely limited, there have been community experiences (sometimes called “credit revolts”) of concerted action by mortgagors or microcredit borrowers who have demanded - and obtained - systemic and fair responses to creditor abuses, as has happened in Chile, Spain, Nicaragua, Morocco, India and Sri Lanka (Thornton and Mader, 2020), among other countries.

debtor countries could lead to a reduction in operating costs. If, in addition, a common framework could be achieved in which debtors would commit themselves to share differentiated achievements (possibly used by creditors themselves as de-mobilizing strategies for collective actions) through “*pari passu*” clauses, the discretionary power of creditors would probably be reduced².

Coordination among sovereign debtors can take place at various levels. It implies a certain degree of coordination of the financial and foreign relations policies of the respective countries, which may reach different levels (see Section 3). There is no guide that points to a gradation or path, although experience can serve as a guideline. What exists are attempts at organization, confluences, which have failed to culminate in a consolidated process.

In fact, concrete efforts of this type of coordination can be identified at present, even among LAC countries. For example, when the G-24 (comprising, among other countries, Argentina, Colombia, Peru, Brazil, India, South Africa and Mexico) expressed in 2021 its criticism of the IMF's surcharges policy (Argentine Government, 2021), or when Lula Da Silva, the current Brazilian president, in 2023 told the Argentine president that he “intended to talk through [his] finance minister with the IMF to take the knife out of Argentina's neck” (Página 12, 2023). From a longer historical perspective, this kind of coordination can be observed in the voting patterns in the political bodies of the United Nations regarding the resolutions involving world economic governance, such as the debates on the “New International Economic Order” in the 1970s³, and more specifically the issues related to foreign debt, where the countries of the global South tend to unify criteria to promote initiatives on this issue⁴. The same can be said of the negotiations between States on debt issues that precede every four years the renewal of the mandate of the United Nations Conference on Trade and Development (UNCTAD).

However, as regards formal organization and collective coordination among debtor States to benefit from the specific negotiation of the debt with creditors, through the creation of a cartel, club or *ad hoc* forum for the achievement of such objective, there are certainly very few cases. An incipient experience of these characteristics was the so-called Cartagena Consensus, a group of 11 LAC governments that met between 1984 and 1987 with the purpose of offering “definition and acceptance of general guidelines (...) to serve as a reference for the individual negotiations of each country” (paragraph I.10 of the Consensus). The creation of a “consultation and follow-up mechanism” (paragraph III.20 of the Consensus) for the member countries of the group, the exchange of technical information on debt and its effects, and the call for political dialogue with the industrialized countries (paragraph II.23) were also proposed, given that the origin of the debt overhang was seen in the policies implemented by the central countries (O'Connell, 1988: 380-5). Specific demands were made for “longer repayment periods, no increase in the cost of debt as a result of refinancing and the establishment of a link between debt service and export earnings” (Tussie, 1988: 69-70). Although the willingness to pay and negotiate on a case-by-case basis was never ceased to be emphasized, this incipient confluence was perceived as a threat by creditors.

² Although the interpretation of this clause has varied over time, it refers to equality of conditions and equitable treatment. In this case, it would indicate the impossibility of discriminating not only against creditors but also against debtor countries.

³ United Nations General Assembly Resolutions (1974), UN Docs. 3201 (S-VI) and 3202 (S-VI).

⁴ “Guiding Principles on Foreign Debt and Human Rights” adopted by the Human Rights Council in 2011 (UN Doc. A/HRC/20/23); “Basic Principles on Sovereign Debt Restructuring” adopted by the General Assembly in 2015 (UN Doc. A/69/L.84); and the “Guiding Principles on Human Rights Impact Assessment of Economic Reforms” adopted by the Human Rights Council in 2019 (UN Doc. A/HRC/40/57).

Although the lack of real commitment of the countries to this confluence, which lacked concrete enforceability mechanisms, as well as the definition of specific responsibilities to make the proposals effective, has been criticized (Crisorio, 2013; Osorio Paz, 1994), the very possibility of constituting a club worked. As presented in the following section, the path followed by the Cartagena Consensus implied a threat to US foreign policy and, despite not having materialized in a cartel (Tussie, 2013), it managed to influence the relationship with creditors. Recently declassified CIA documents (CIA, 1986), contain detailed analyses of this.

3. The historical experience of concertation in debtor countries

3.1. In Latin America

The constitution of clubs or cartels of debtor countries is a good idea even if it has never been fully realized. And there are some clues as to the rationality of this not happening. These include a) the diversity of national situations in terms of economic, political and creditor relations; b) the composition of their debts and the assessment of sustainability in each case; c) the internal socio-political interests of each country in relation to the debt problem; d) the threats of sanctions and parallel payments used by creditors; e) the cartelization of creditors; f) the certainty of certain risks versus the uncertainty of achievements and; g) the capacity to create a narrative that provides ethical and political support to debtors' demands. In other words, there are concrete incentives for the debtor countries not to choose the path of mutual agreement and to persist under a set of negotiating rules that does not benefit them.

In this regard, it should be noted that there has also been conflict and competition among creditor countries. This is not an automatic, harmonious or obvious confluence. After the Second World War, with the signing of the Bretton Woods agreements (1944), the US sought to ensure a financial coordination structure that would avoid competition between powers, thus securing for itself the position of *primus inter paris*. The creation of the IMF sought to guarantee this privileged place in the resolution of payment disputes. Other less formal structures also appeared over time (Ugarteche, 2013). In 1956, in view of Argentina's debt payment problems, and at the debtor's request for a meeting, the Paris Club was created, an informal arrangement between official creditors, which even today allows creditors to coordinate their actions. They act under principles that are denied to debtors (Cosio-Pascal, 2008): decision making by consensus among those involved, sharing information, going case by case but committing not to grant better treatment from another creditor (inside or outside the club). The proposals of the Cartagena Consensus were very similar to the Paris Club guidelines, albeit from the debtors' angle. In 1976 the London Club, which brings together private creditors, was created in response to Zaire's payment problems.

The debtor countries identified early on that the debt problem was not a strictly national issue. In September 1979, at the VI Conference of the governments of the Non-Aligned Movement, and in line with the calls for the constitution of a "New International Economic Order", the debt issue was linked to the need for countries to develop in an independent and peaceful manner (Martínez Carreras, 1980). It is important to emphasize this idea: the burden of debt prevents development, since it generates a growing divergence between debtors and creditors, feeding social and political instability, which threatens international peace and security. Fidel Castro made this reading in 1979, at the UN General Assembly, where he also associated it with the growing protectionism of industrialized countries, which prevented them from raising the resources to pay. In that speech, which represented what had been discussed by 96 countries the previous month during the VI conference, he called for debt relief for Third World countries, and the direct cancellation of the debt for very poor countries (Castro, 1979). Castro reiterated these demands at the next meeting (VII Conference) of the Non-Aligned Movement,

held in New Delhi in 1983: in the face of the debt crisis, the alternative was the “debt strike” (Tricontinental Institute for Social Research, 2023).

This background is significant because it points to a broad confluence of peripheral countries from different regions, which were experiencing similar problems and demanded common solutions. Although debt appears here as a key element in the characterization of the situation, it was not the axis of the political construction. In this sense, without ceasing to be a valuable antecedent, it does not strictly compose a coordination of debtor countries, but a coordination among peripheral (Third World, non-aligned) countries with diverse economic problems, among which debt stands out⁵. Apart from the call for relief or cancellation, as the case may be, no mechanisms of their own were proposed to advance in this direction -beyond political pressure-.

As a result of the increase in the benchmark interest rate in the United States at the end of 1979, the so-called Volcker Shock (after Federal Reserve Chairman Paul Volcker), the region’s debt rollover became more expensive at an accelerated pace. Capital flows, which had flooded the region during the previous decade (Estay Reyno, 1996), were reversed. In August 1982, the Mexican government announced the suspension of debt payments and received a swift aid package from the United States and the IMF. The following month Brazil announced the same, and in early 1983 Argentina joined in. The IMF’s view was that there was a liquidity problem, and the only way out was fiscal adjustment. The banks acted early on in a cartelized manner, under the logic of syndicated loans, whereby the largest entities acted as coordinators, working together with the IMF and the U.S. government (Val, 2017). The exposure of U.S. banks to Latin American default, however, was very high and widespread, and payment problems caused accounting forecasts that could lead to a stock market crisis of magnitude. This was of concern to US government authorities and prompted them to act on the situation.

In February 1983, the President of Ecuador, Osvaldo Hurtado, sent a letter to the authorities of ECLAC and the Latin American Economic System (SELA), asking them to prepare a report on the situation and alternatives, which they presented in May of that year. The letter came a month after the constitution of the Contadora Club, aimed at seeking peaceful solutions to the crisis in Central America. The search for coordinated solutions at the Latin American level linked the economic issue of the debt with the social and political situation, especially peace and democratic transition (Green, 1990).

The joint report (ECLAC-SELA, 1983) emphasized the external origin of the crisis, due to the recession and protectionism of developed countries, the increase in interest rates and the reversal of capital flows. In view of this, the case-by-case negotiations, guided by the IMF, had been slow and costly, focusing the adjustment on debtor countries. In view of this, they suggested having an automatic and voluntary refinancing facility based on objective indicators, which would simplify the renegotiation process, including special clauses in the rescheduling agreements that would make payments dependent on the debtor country’s economic conditions (a sort of premium tied to GDP growth). It was suggested that longer payment terms be contemplated, that the resources available for development and from the IMF be expanded (including the creation of a special line for countries affected by sudden rises in interest rates), making the theoretical conception that accompanies its loans more flexible “to better adapt them to the diverse socioeconomic goals of its increasingly heterogeneous member countries”. Finally, it recommended the creation of a Latin American center for information on external financing. The document was formally presented in Bogotá on May 18-20, 1983, at a meeting of

⁵ These experiences led to the creation of the Committee for the Abolition of Third World Debt (CADTM). See <http://www.cadtm.org/La-genealogia-del-CADTM-y-de-su>

experts convened by ECLAC (González Rubí, 1983), where the need for coordinated action was emphasized.

This analysis and its suggestions were taken up at the Latin American Economic Conference held in Quito on January 9-13, 1984. This conference, focused on the urgent problem of peace and the consolidation of the nascent democracies, drew up the Quito Declaration with a plan of action that emphasized the joint responsibility of debtors and creditors⁶. It pointed to the fall in international trade and terms of trade, the rise in interest rates and the reversal of capital flows as the origin of the crisis (points 8, 17, 18 and 20). In other words, it emphasized the external origin of the crisis, the co-responsibility of debtors and creditors and, therefore, the need for common criteria to overcome the crisis.

The basic criteria proposed therein were: i) that export revenues should not be committed beyond reasonable percentages, compatible with the maintenance of domestic growth; ii) that interest, commissions and margins for all items should be reduced, in order to stabilize over time the resources allocated to debt; iii) extension of terms and grace periods; iv) the need for access to new financial resources and; v) improved access of the region's products to the world market. To this end, it was proposed that "the Ministries of Finance, Economy or Treasury and the central banks of the countries of the region *establish effective, direct and confidential exchanges of information* on the conditions under which the refinancing and rescheduling of the external debt of those countries takes place. Likewise, (...) when requested by any country or countries of the region, the competent international organizations such as SELA, the Center for Latin American Monetary Studies (CEMLA), ECLAC, UNCTAD, and the United Nations Development Program (UNDP), as well as the governments of the countries of the region, should provide technical assistance" (emphasis added). In other words, they actively promoted the exchange of information, coordination and technical assistance among governments and through international organizations. In addition, they called for the need to increase the resources of the IMF and development banks, increasing the availability per quota and speeding up disbursements. Furthermore, it was suggested that the conditions demanded by the organizations in peripheral countries should be revised to be more in line with the objectives of growth and employment, but also with the policies of developed countries, in order to coordinate an equitable adjustment. In other words, a new coordinating role was assigned to international organizations. Finally, it was suggested that trade barriers should be reduced and trade integration promoted, both among Latin American countries and with the central countries.

In other words, it established a series of concrete recommendations. According to Rama Iglesias and Schulz (2015), although this meeting had no practical effects, it created an atmosphere of solidarity among Latin American countries. Tussie (1988) agrees on that point, emphasizing a key aspect: the declaration signed by presidents and ministers made it clear that the debt problem was political. Osorio Paz (1994) criticized the insistence on the thesis of co-responsibility that emerged there, since it enabled the demand that debtors continue to pay, while it had no real implication for demanding adequacy from creditors.

However, on the part of the creditors, there was no substantive change in demands or mechanisms. In March 1984 Argentina suspended an agreement signed by the dictatorship with the IMF, and indicated that it was looking for a solution more in line with the country's possibilities. This would have

⁶ Item 16 stated: "The attitude of the governments of Latin America and the Caribbean, in recognizing and assuming their obligations, demands from the governments of creditor countries, international financial organizations and international private banks, an attitude of co-responsibility in the solution of the foreign debt problem, taking into account, in addition, its political and social implications".

the possibility of tightening the financial situation for the whole region. In view of this, Brazil, Colombia, Mexico and Venezuela decided during the annual meeting of the Inter-American Development Bank, in Punta del Este, to lend to Argentina in order to make a payment (Tussie, 1988). However, a new rise in interest rates in those months made the adjustment efforts to sustain payments futile. On May 19, the presidents of Argentina, Brazil, Colombia and Mexico made simultaneous pronouncements on the effects of the interest rate hike, showing political harmony. It was emphasized that this generated a situation of risk for democracy and economic security that could not be extended indefinitely, and it was necessary to reorient efforts towards economic growth and the improvement of the population's living conditions. Navarrete (1987) points out that it was this letter that "conjured up the specter of a debtors' club". On June 5, at a meeting of foreign ministers and finance ministers of the aforementioned countries, together with Ecuador, Peru and Venezuela, a document was issued calling for a change in debt management. This document was presented to the G7 meeting in London, which reacted by stating that the debt would continue to be dealt with bilaterally -not as a block (Crisorio, 2013). In other words, creditor countries -in a coordinated manner- refused to consider the common situation of debtor countries, and referred to the IMF and the World Bank as the appropriate forum (Navarrete, 1985).

The situation became more tense when in June 1984, Argentina sent a letter of intent to the IMF, drafted for the first time unilaterally (without agreeing the text with the organization's technicians), relying in some way on the so-called odious debt doctrine by expressing that the obligation was contracted by a military government against the interests of the Argentine people (O'Connell, 1988; Tussie, 2013). On June 21 and 22, 1984, the foreign ministers and ministers of economy of Argentina, Bolivia, Brazil, Colombia, Chile, Ecuador, Mexico, Peru, Dominican Republic, Uruguay and Venezuela met, launching the so-called Cartagena Consensus. At that time, Argentina, Bolivia and Ecuador had interrupted payments and the Dominican Republic its negotiations with the IMF. The creditors, trying to avoid the confluence, had granted advantageous credit lines (partial concessions) to Brazil, Mexico and Peru.

This tour shows that Cartagena was reached after a succession of declarations, meetings and previous studies, within the framework of a growing regional coordination not only focused on economic issues -but also linked to peace and the defense of democracy-, in the face of the creditors' refusal to offer coordinated solutions that would adopt -and materialize- a principle of co-responsibility (Pettifor, 2000). Even more radical solutions were on the agenda (the calls of the Non-Aligned Countries for relief and cancellations), and unilateral pressures from debtors (Argentina and Brazil). This framework is central to understand why, despite the incentives that made it unlikely, the confluence of debtors occurred (O'Donnell, 1987).

In Cartagena, a declaration was adopted whose central points were based on previous efforts (including the ECLAC and SELA document, as well as the Quito Declaration). Argentina and Bolivia presented the most radical coordination positions, even suggesting delegating negotiation to a centralized commission. However, most countries considered that their own case had special characteristics that would allow them preferential treatment and less stringent conditions, so that coordinated action should not be exaggerated (Tussie, 1988). They were therefore careful to make it clear that a debtors' club would not be formed: treatment would continue to be on a case-by-case basis, while debtor countries sustained adjustment measures to reaffirm their commitment to payments. But they demanded that priority be given to economic development and that negotiations be conducted within a common framework that prioritizes political dialogue (Navarrete, 1987). They emphasized co-responsibility and mutual concern in economic matters.

The specific proposals of the Consensus can be summarized as follows (Palma, 1984; Tussie, 1988):
1) adopt measures to reduce international interest rates or implement a mechanism to reduce the

impact of high rates on debtor countries; 2) take into account in each negotiation the capacity of each country to recover and repay; 3) establish a reasonable limit for debtors' commitments in relation to their export revenues; 4) strengthening the credit capacity of international lending agencies; 5) revising the criteria with which the IMF conditions its loans to make them more tolerable for debtor countries; 6) establishing longer repayment periods and more favorable interest rates and; 7) eliminating tariff barriers and other protectionist measures of industrialized countries to increase the export capacity of debtor countries. As can be seen, these proposals were in line with previous demands.

In addition, the Mechanism for Consultation and Follow-up was created, which met at the technical and ministerial levels between 1984 and 1986 (Green, 1990). After the first meeting in Cartagena, two more ministerial meetings were held in Mar del Plata (September 13-14, 1984) and Santo Domingo (February 7-8, 1985). During these meetings, the possibility of inviting the creditor countries to a political dialogue meeting was discussed at length, but they flatly refused (O'Connell, 1988). This would have implied putting debtor and creditor countries on an equal footing, giving a political entity to the confluence of the former. This refusal possibly facilitated the presence of 1,200 delegates from almost all the countries of the region at the meeting on the External Debt of Latin America and the Caribbean, held on August 3, 1985 in Havana⁷. There, Fidel Castro pointed out that the debt was mathematically and economically unpayable, and that it was neither morally nor politically acceptable to repay it. It was, therefore, a more radical call to cancel part of that debt -even with socialist countries- in a coordinated manner. The threat identified by the CIA (1985) was explicitly expressed there. The criticism of the Cartagena process made in Cuba was that it did not include all the countries of the region, since no Central American or Caribbean government was present there (Castro, 1985).

Just a month earlier, in July 1985, upon taking office as President of Peru, Alan García had indicated that he would not accept an IMF mediation and would limit debt payments to 10% of export revenues (Cf. Ugarteche, 1988). The presidents of Argentina, Brazil and Uruguay present, plus the host, created the Contadora Support Group, thus forming what became known as the Group of Eight. Garcia's announcement was thus endorsed by his peers, and the debt problem was part of the peace process and consolidation of democracy in the region. Peru declared a unilateral moratorium for six months in August 1985 (and would in fact default on its payments to the IMF as of April 1986).

It is likely that this intensification of the confluence exerted pressure on creditors (Tussie, 2013; Ugarteche, 1988), since in September the Baker Plan was launched, made official by the then US Secretary of the Treasury. This plan proposed a "program for sustained growth", shifting from the previous recessionary adjustment paradigm -where the problem was seen as exclusively one of liquidity, to be understood now as a problem of insolvency (Val, 2017)-, although reinforcing the coordinating role of the IMF and the obligation to advance in structural reforms to relaunch growth. Co-responsibility was accepted by making new funds available from international lending agencies, albeit for barely a third of what was to be paid for the debts. To disarm the confluence, the World Bank offered Mexico the first Trade Policy Loan in a comprehensive program of adjustment and liberalization, and then to Argentina to support the Austral plan. However, the Baker Plan did not provide sufficient relief or new funds, relying too much on the consent of the commercial banks (Navarrete, 1986; Rosales, 1986). Despite understanding that it was necessary for the region to grow in order to be able to pay, the plan relied on adjustment and stabilization in debtor countries, without considering measures to boost activity or specific policies in creditor countries to boost world aggregate demand (Cusminsky and Gitli, 1987).

⁷ Strictly speaking, only Argentina, Bolivia, Ecuador, Guyana, Nicaragua and Panama sent official representatives, while the rest of the emissaries participated unofficially (Córdova-Claure, 1985).

In December 1985, the Consensus countries met in Montevideo, where they issued a new Declaration, explaining that, if the proposed set of measures were not adopted, the region would be forced to stop transfers abroad. In other words, the consensual approach was partially abandoned, threatening a coordinated suspension of payments. There it was expressed that the Baker Plan implied partial consideration of their demands (O'Connell, 1988). In February 1986, only the countries that were members of the Montevideo follow-up committee met in Punta del Este. From there they raised a coordination initiative to the Group of Eight, which constitutes coordination at the presidential level, and the debt issue was carefully considered at their meeting in Acapulco in November 1987.

In February of that year, Brazil had declared a unilateral moratorium on payments, and as a result Argentina, Mexico and Chile obtained more favorable negotiations (O'Donnell, 1987). Brazil, on the other hand, had its trade credit cut, threatening to intensify sanctions. The strategy of the creditors of making partial concessions and at the same time threatening with sanctions those who insisted on unilateral actions was successful in containing this incipient Latin American confluence. The countries of the region hoped that they would not be punished and used coordination as a threat. Between 1984 and 1987 there was some exchange of legal and technical information, mutual diplomatic support and joint political declarations. While creditor countries were initially called to dialogue in order to achieve a coordinated solution, the lack of favorable responses led to the threat of unilateral payment suspensions. However, since 1988 there did not appear to be countries willing to make more intense threats to creditors (Tussie, 2013).

Creditors' refusals to debtor countries' demands and their strategies to dismantle possible confluences were combined with the changing international scenario in terms of trade (quantities and prices) and interest rate movements, which produced temporary relief that each country had to interpret in its own strategy. However, despite the magnitude of the crisis, the region did not incur in a generalized and systematic way in cessation of payments, which is a historical anomaly -if compared, for example, with the crisis of the 1930s (Estay Reyno, 1996; Marichal, 1988)-. The strenuous effort to meet the obligations generated by the debt implied a permanent transfer of resources abroad, which resulted in zero growth in the region, increased poverty and inflation during the 1980s (Bértola and Ocampo, 2021). It must be stressed that this was an exacerbated result of the region historical transfers abroad due to unequal exchange patterns (Hickel, Sullivan & Zoomkawala, 2021), by adding capital outflows.

On the side of the creditors, it was possible to avoid a generalized default and, although partial concessions were made, the greatest achievement was to avoid the cartelization of debtors, i.e., to sustain the imbalance of power (O'Donnell, 1987). It was a success for these actors to achieve the full involvement of the US government, which promoted a more active role of the Bretton Woods institutions, especially the IMF, which thus became central in the reformulation of economic policies focused on structural reforms (Ugarteche, 2009). This logic would reach its epitome with the presentation of the Brady plan in 1989 (by the then Secretary of the Treasury), which boosted access to private funds through the securitization of debts, with a relief of between 20-30% (which contrasted with the market value of those debts, which in the best of cases reached half the nominal value). The new bonds would be guaranteed by the US Treasury together with international lending agencies in exchange for the implementation of structural reforms, which included the valorization of the securities themselves in the framework of privatizations of public enterprises. The following decade brought renewed access to funds at low interest rates, which ended up dismantling any search for convergence in the region around the debt problem.

3.2 Concertation efforts in Africa

Although the Latin American experience of articulating debtor States described in Subsection 3.1 has undoubtedly been the most important in terms of its scope, there have been other efforts to achieve some coordination among debtor countries.

In another latitude, the debt problem was also growing in Africa. In July 1987, in a regional context marked by very high proportions of fiscal resources allocated to debt repayment in concomitance with indecent levels of poverty and extreme poverty in the African continent, the president of Burkina Faso, Thomas Sankara, at the meeting of the Organization of African Unity held in Addis Ababa, delivered his renowned speech calling for the non-payment of the African debt, denouncing the colonialist origins of the debt and its perpetuation, and the correlative call for coordination among debtor countries in the region. Sankara (1987) explained then:

“Debt cannot be repaid, first because if we don't repay, lenders will not die. That is for sure. But if we repay, we are going to die. That is also for sure. Those who led us to indebtedness gambled as if in a casino. As long as they had gains, there was no debate. But now that they suffer losses, they demand repayment. And we talk about crisis. No, Mister President, they played, they lost, that's the rule of the game, and life goes on. (...)I would want our conference to take on the urgent need to plainly say that we cannot repay the debt. Not in a warlike or bellicose spirit – but to prevent us from being individually assassinated. If Burkina Faso stands alone in refusing to pay, I will not be here for the next conference! But, with everyone's support, which I need, with the support of everyone we would not have to pay. In doing so, we would devote our meager resources to our own development”.

Two months after reading this speech, Sankara was assassinated in a coup d'état in Burkina Faso⁸.

Sankara explicitly quoted Fidel Castro in that speech. Countries on both sides of the Atlantic had participated in the sessions of the Non-Aligned Movement, and the Cartagena experience had not yet been dismantled. Sankara called for the formation of a United Front against the debt. On the Latin American side, the proposals to seek common negotiated frameworks to extend repayment terms and grace periods, as well as to reduce interest rates, resonated with echoes - this is what Peru, for example, was trying to do at that time (Ugarteche, 1988).

In December 1987, the Organization of African Unity adopted at its November/December extraordinary session a resolution on the African external debt crisis (OAU 1990), calling for the creation of a forum for international creditors and African debtor states to arrive at appropriate measures for the alleviation of the African debt situation. This resolution also contained the so-called “Common African Position on the African External Debt Crisis”, which demanded that “The strategy for the solution of Africa's debt problem should be based on cooperation, continuous dialogue and shared responsibility (...)”. And, more importantly for the purposes of this article, the States affirmed that “We commit ourselves to intensify intra-African cooperation and consultations through the exchange of information and harmonization of positions on debt negotiation and restructuring (...)” (paragraph IV.A.vii of the Position paper, emphasis added). In 1988 the Organization of African Unity issued another resolution specifically on the region's indebtedness, recalling the call for an international conference for African creditors and debtor States mentioned above (OAU 1988).

⁸ Thomas Sankara's policy actions on debt and their possible implications for the evolution of the Cartagena Consensus can be found in the analysis documents prepared by the CIA (CIA 1985).

The moral and political depth of Sankara's postulates galvanized in the 1990s, with a growing global movement in favor of debt cancellation for heavily indebted countries. Pressure from international civil society was felt: the narrative constructed by Sankara reached far beyond his home country. As a result, there was a reaction from creditors. It was the time of the IMF-sponsored Heavily Indebted Poor Countries Initiative, which facilitated the cancellation of multilateral debt of very poor countries. However, only 36 countries took advantage of this initiative, mostly in Africa.

In 2020, in the midst of the coronavirus pandemic, high-level representatives of Ethiopia, Senegal, South Africa and the African Union jointly and in coordination called for the postponement of the foreign debt and even the cancellation of payments. Ethiopian Prime Minister (and Nobel Peace Prize laureate) Abiy Ahmed, Senegalese Head of State Macky Sall and South African and African Union (AU) Chairman Cyril Ramaphosa took the request to the G20 plenary (Naranjo 2020). In mid-April 2020, the G20 granted a debt service deferral that lasted until the end of 2021 (see Section 5.1), while the IMF announced its debt relief program for poor countries (Catastrophe Containment Trust Fund), under which relief was given to 31 in total, 25 of them African. Nevertheless, three years after the pandemic, African countries are facing a severe debt crisis, some of them even declaring default. IMF insists on its traditional adjustment programmes. An authentic geopolitical struggle is taking place in the financial arena: while Western countries insist on China's responsibility as the main bilateral creditor, China refers to the unfair conditions under the IFIs' deals, on which relays most of African debt (Eickhoff and Thiele, 2023). The underachievement of development goals, including poverty reduction and climate challenges, encouraged the Egyptian Ministry of Finance to launch a sustainable debt coalition in December 2022. In March 2024, 45 African Ministers of Finance, Planning and Economic Development, worried on the growing weight of debt burden, endorsed the initiative (see ECA 2024). This shows that the need of a collective arrangement on debt is on the agenda for African countries.

4. Challenges, opportunities and prospects for debtors' collective action in LAC

After the outbreak of the crisis in 2008, central countries implemented monetary expansion policies that kept real interest rates low (even negative), which promoted the use of credit among States. This caused public debt to reach record levels before the pandemic (Cantamutto and Castiglioni, 2021). However, with the pandemic crisis, the levels of indebtedness took a new leap, whereby public debt reached the world GDP, representing 40% of the total debt - a fact unparalleled since the 1960s (UNCTAD, 2021a). As soon as the pandemic began, the creditor States themselves, which have a predominant presence in the G20, the IMF and the World Bank, drew up proposals to deal with the potential debt crisis. Among them, a very limited relief mechanism was proposed -used by 31 very poor countries for a meager US\$965 million-, a Debt Service Suspension Initiative (DSSI), which was used by 46 countries, and the proposal for a common negotiation framework. These initiatives had severe problems because they did not include other official creditors -such as China, which is currently the main official creditor- or private creditors. The IMF created two emergency lines and in August 2021 issued \$650 billion in Special Drawing Rights. None of these measures included consideration of the health and humanitarian emergencies of the debtor countries, the challenges of their recovery, much less gave them a space for dialogue to present their demands.

As soon as the world began to emerge from the pandemic, the problems of indebtedness made themselves felt again, especially because of the war in Ukraine and the rise in reference interest rates in the United States and Europe (World Bank, 2022; ECLAC, 2023b; Guénette, Kose and Sugawara, 2022). It should come as no surprise then that Jubilee identified in 2022 that 54 countries were

experiencing a debt crisis. The IMF's analysis of the 70 lowest income economies (poor countries) indicated that as of November 2023, 10 countries were in debt crisis and 26 countries showed a high risk of being in debt crisis, including three LAC countries (Dominica, Grenada, Haiti, St. Vincent and the Grenadines).

LAC is no exception to this generalized situation. Although data for 2022 indicated a reduction in the debt burden, it was still above pre-pandemic levels, at around 56% (ECLAC, 2023a). By way of comparison, in 1980, when the crisis of the lost decade began, public debts weighed on average 35% of GDP (Ugarteche 2013). So, objectively speaking, the situation is more delicate at present. In recent years, moreover, the weight of external debt in the total has increased, which adds difficulties centered on access to foreign currency (ECLAC, 2023a), and the weight of private creditors -especially through the issuance of bonds, which accounts for 74% of the external public debt- (Colodenco, Horas and Wiedenbrüg, 2023). Thus, the region's main creditors are not included in the initiatives of official creditors, and renegotiation depends mainly on a case-by-case treatment.

Given that the 2022 debt reduction relied on GDP recovery, as new threats loom over this dynamism (ECLAC, 2023a), it becomes more difficult to expect this limited relief to continue. All this generates a worrisome picture: the trend of increasing debt burden and associated services has escalated to a speed and level comparable to the crisis of the 1980s. The weight of external debt services relative to exports has grown severely in the region, oscillating around 25-30% (Colodenco, Horas and Wiedenbrüg, 2023).

Thus, the world periphery as a whole seems to be facing a delicate situation in terms of public indebtedness, to which there seem to be no great answers. The succession of pandemics, war in Ukraine and the implementation of restrictive monetary policies seems to indicate that debt is and will be a systemic problem in the years to come⁹. This reality collides head-on with the urgency of investments in the face of climate change, State commitments in relation to the Sustainable Development Goals and the international obligations of States in terms of economic and social rights. In LAC, this tension is compounded by the long series of pre-existing inequalities in the most unequal region on the planet in terms of wealth distribution.

In view of the above, there is an objective need to address the problem of sovereign over-indebtedness and the systematic imposition by creditors of contractionary economic policies affecting a large number of countries. The concertation of LAC debtor countries would undoubtedly strengthen their negotiating position vis-à-vis creditors. However, from what has been analyzed so far, it is possible to identify a series of challenges to conceive and put into practice an instance of organization and cooperation of this type.

In the first place, countries have to perceive their interests as common or complementary so that participating in that organization is valued as a better option than being outside it (Keohane, 1984: 72 ff.). However, countries often have divergent interests by the mere fact that they are hit by the crisis in a differentiated way, by their external situation in the balance of payments (Hojman, 1987), as well as by their closeness to creditor countries (Rama Iglesias and Schultz, 2015: 13). In addition, the geopolitical positions and strategies of debtor countries tend to influence determining financial decisions. These differences are exploited by creditors to maximize internal differences (CIA, 1985).

⁹ Bretton Woods agreements avoided a solution to address the need of a fairer international monetary system, which considers the countries commerce and financial imbalances (both developed and underdeveloped countries). Keynes proposals for an International Clearing Union and a global currency –Bancor- were rejected when engaging with US delegate proposal (Aglietta, 2018). This discussion is once again in nowadays agenda.

At this point, the governments of the region should focus on and highlight coincidences rather than divergences, which implies political and diplomatic work that is as creative as it is cautious. It is key to make visible the adverse socio-economic effects resulting from debt burden. Although these phenomena hit countries differently, the domino effect may affect the entire region through various channels: regional trade, access to credit -since capital flows show regional determinants-, or even in the event of a more severe crisis, due to internal migration phenomena.

Thus, the following aspects are also key in the dynamics of coordination among debtor States: reliability in communication among these governments (O'Donnell, 1985: 30); positive experiences of previous coordinated actions; and the tightness of political and economic ties among the countries that make up the group, so that there are ties that discourage governments from defection. To this end, it would be useful to create an institutional body to represent the group externally (Ostrom, 1990: 94 ff.).

At this point, it is important to insist on the cooperative benefits in general terms, beyond the specific problem of debt. In contrast to the 1980s, today there are integration experiences with diverse but recognizable paths and results. Among them, for example, Mercosur has been in force for almost three decades, or CELAC -which includes the 33 economies of the region- has been operating for 13 years. In more political than economic terms, UNASUR coordinated significant actions that involved a certain level of confrontation with central countries, such as the prohibition of entry to ports of ships flying the Malvinas flag, in support of Argentina's claim of sovereignty over the islands. This shared experience is a source of reciprocal trust, which is not free of threats, but can serve as a basis for concerted diplomatic action. These integration spaces are going through a political moment of re-launching, where Latin American unity is seen as an important asset and objective to be consolidated¹⁰.

It is thus necessary to think about the reconstruction of common integration spaces, which place the debt in relation to the broader interests of the region, such as peace, democracy and the welfare of its peoples -as it was done during the confluence of the 1980s-. In fact, it is from this region that the Bridgetown initiative was launched to the world (UNCTAD, 2021b). This proposal is based on the serious situation of indebtedness of the countries of the periphery (focusing on small island States) and associates it with urgent investment requirements in the face of climate change. In this sense, there are very concrete proposals to be promoted, whose moral significance has not been seriously disputed so far.

The possibility of re-creating a consultation mechanism focused on providing information and technical and legal advice would be of enormous help, especially for countries with fewer resources¹¹. Existing multilateral agencies have the capacity to carry out such a task, and even more so if it were to work in combination with the corresponding national agencies.

The threat of sanctions and the use of side payments by creditors to discourage and block debtors' concerted efforts cannot be ignored. In this sense, the possibility of having alternative sources of credit to get through the most conflictive situations is useful. On this point, countries that are not experiencing a particularly severe debt crisis may be able to contribute resources. But it is also possible to explore

¹⁰ UNASUR, for example, was severely limited with the departure of members during the wave of conservative governments in the region. Currently, Brazil is calling for the reconstitution of such a space. See <https://www.gov.br/planalto/es/ultimas-noticias/presidentes-sudamericanos-se-reunen-con-lula-en-brasilia-el-proximo-martes>

¹¹ And even for subnational public entities, which resort to the credit markets without adequate administrative, legal and accounting structures to enable them to deal with the requirements of creditors.

other competitive sources of credit, as has recently been the case with loans from development banks linked to the BRICS (Brazil, Russia, India, China and South Africa) or even bilaterally with China. This does not imply the neutrality of alternative sources or their solidarity-based nature: it is rather a matter of exploiting existing possibilities to force creditors to make concessions to ensure that the debt is sustainable without condemning debtor countries to misery. This possibility of alternative sources was not available at the time of the Cartagena Consensus.

Regarding private creditors, attention should be drawn to the strong asymmetry with respect to debtor countries. As explored by Munevar (2021), the incidence of government bonds in the total assets of large investors is really low. Conversely, countries face few creditors with great capacity to collateralize, nullifying the effect of Collective Action Clauses with ease. Then, if, on the one hand, any default implies a degree of impact on the value of creditors' assets (and therefore an effective threat), on the other hand, the dispersion of creditors and their lower systemic exposure removes direct incentives for the States of those same creditors to intervene directly.

Private creditors' over-demand, and their lack of agreement with common frameworks, jeopardize economic recovery and the global green transition, so that even the home States of creditors face a certain dilemma that could be wisely exploited. The need for a socio-ecological transition is actually in dispute, given the corporate-colonialist bias promoted by creditors (Ajl, 2021). A new deal on this matter, that considers Earth's limits and the quality of life in the planet, is needed (Mastini, Kallis & Hickel, 2021; O'Neill, Fanning, Lamb & Steinberger, 2018.). Creditors should not be able to hoard veto power to any ecological transition.

Furthermore, the possibility should be explored of referring to international and regional courts with human rights jurisdiction to seek the prevention or resolution of conflicts between creditors and debtor countries (Pettifor, 2002). For example, a group of LAC States could ask the Inter-American Court of Human Rights for an advisory opinion on how they should harmonize their financial obligations (debt) and human rights obligations, so that a political project of agreement between debtors could be recognized in such an objective of legal harmonization. In any case, it should be made explicit (even officially and in international forums) that under international law the principle of cooperation between States not only prohibits creditor States from intervening in the affairs of a debtor State (such as its public finances) but also prohibits discrimination against States -unequal treatment without legitimate reason-.

Likewise, in order to reduce the direct capacity of private creditors to exert pressure on debtors, the idea put forward during the pandemic of setting up a public risk rating agency should be revived, since this delicate task is currently in the hands of a few private agencies -whose shareholder control is also in the hands of creditors, who therefore have conflicting interests for a neutral evaluation-.

It should also be noted that countries often have conflicting domestic interests and that the interests of the majority of the population will not necessarily be reflected in foreign financial policy, given the different relative weights of the actors operating in society (Rama Iglesias and Schultz, 2015: 15). In general, the actors that depend on access to external financing are just a handful of companies of those operating in each country, which have great structural power. Given that this sector has privileged access to the media, to the dissemination of its ideas, even greater lobbying capacity before and within the State, it is vital to account for this confluence of interests, which implies a certain degree of political conflict. Governments embarking on a task of this nature cannot expect to be able to do so through a logic of total conciliation: even without direct and permanent confrontation, it is necessary to bear in mind that governments must be able to limit the influence of these actors.

Potential sanctions from creditors are thus combined with pressure from local partners. This may even take the form of economic destabilization, through currency or financial runs. If this were to happen, to what extent would the population be willing to support a government that demands sacrifices in the short term in order to obtain benefits in the medium and/or long term (Fernandez and Glazer, 1989: 25)? It is necessary to contain threats through mechanisms that lighten sanctions. Among them, it is relevant to note the possibility of associating to these disputes the need to review neoliberal structural reforms that gave greater power to these actors and were not always revised. Access to alternative financing channels may help to lighten the burden of potential sanctions. Likewise, the high international prices of the region's export products are a mechanism that relaxes the pressure on fiscal coffers.

Possible sanctions from creditors are not limited to financial or commercial issues, but also in terms of the external image of countries. The conflict Argentina went through with the so-called "vulture funds" between 2012 and 2015 illustrates this point, as the country was systematically harassed legally and in the media for refusing to pay these creditors an amount above the amount exchanged with the rest of the bondholders in 2005. However, it is precisely this case that provides a glimpse of how, over a period of time, an internal consensus was built regarding the excessive demands of certain creditors. For this very reason, governments should try to be as transparent and participatory as possible in national debates on the implications of over-indebtedness for the material living conditions of the population. The support of civil society can accompany comprehensive and participatory audit processes, which help to reconstruct the picture of those responsible for and beneficiaries of debt operations. The precedents of Ecuador in 2007, Iceland in 2009 and Greece in 2015 are valuable for showing that they give thickness to a political decision that has costs. They also show that the paths that follow from such a process are not unique, since audits are instruments and not ends in themselves.

Enriching public discussions, which determine the physiognomy of the dynamics of domestic policy, can help to marginalize positions that oppose the forging of regional alliances of debtors and strengthen the voices in favor. This is shown, for example, by the tax reform process undertaken in Colombia, with a clear regional vocation: "Latin American Summit for a global, inclusive, sustainable and equitable taxation", which will be held in July 2023 precisely in Cartagena. This kind of initiatives are relevant not only to build solidarity in the region based on dialogue, not only among governments but also with civil society. Moreover, it highlights two relevant components: to have leaderships that promote the agenda and to build a common narrative. Regarding the former, the governments promoting the initiatives do not necessarily have to be in trouble: it is precisely the other way around, the relatively comfortable situation allows them to maneuver with less external pressure.

Regarding the latter, the choice of Cartagena as a city illustrates the possibility of constructing a story, a broad narrative, that refers to a not so distant past, when attempts were made to move forward in another way that was blocked. It is not only the reference to the past that helps to rework the common destiny, but also the urgencies to come. In this sense, the absolute urgency of investing to deal in the climate change field would make it possible to bring together on the same plane a projection of a better future. The Bridgetown Initiative is a model to be expanded in this sense, although reinforcing the coordination component between affected countries: the affectation of common problems for which there may be a collective solution.

It is a possible task of the region's multilateral organizations -such as ECLAC- to help show the existence of a common scenario, with strengths and threats, and the possibility of building joint paths¹². The work of ECLAC and SELA in 1983 was key to give technical depth to the political demand. The incidence of civil society organizations and experts is of vital importance in this sense, and composes a potential task of construction of meaning: through research work as well as dissemination. It is necessary to make explicit how the common threat of debt can be twisted through common work, "turning weakness into strength" (as the CIA potentially did in the 1980s).

Finally, the characteristics of creditors and how they come together to negotiate influence the individual and collective negotiating capacity of debtor countries. Alliances between transnational banks, governments and IFIs, often captured by private financial investment interests, can determine the levels of coordination and political action of the creditor bloc to inhibit the organization of debtors' clubs. Here again, the Cartagena Consensus and the reaction of creditors testify to this dynamic. This situation may become even more complicated by the changes that have occurred in recent decades, such as the fact that since 2016 Brazil has been a member of the Paris Club, thus having an ambivalent role with respect to its role as debtor and creditor at the same time.

The rise of a new set of economies - among which China stands out - has been the engine of dynamism that has prevented a more far-reaching generalized crisis. China, which has become the world's main official creditor, has not yet developed its own institutional framework to displace or confront the Bretton Woods legacy, where hegemony is exercised by the US. So far, it has expanded its financial influence, but maintains its insertion within the IMF. Currently, China is guiding its international investment and loan policies through the Road and Belt initiative (Jones and Zeng, 2019), and has also reinforced the BRICS' bank as an international platform to gain influence in peripheral countries. In fact, in August 2023, six new countries (Argentina, Egypt, Ethiopia, Iran, Saudi Arabia and the UAE) were admitted to join. This does not detract from the fact that it implies a certain degree of friction with the dominant power. It is still unclear how BRICS are going to expand its influence, being mostly in a double standard role, both as debtors and creditors. This uncertain geopolitical scenario makes it possible for debtor countries to exercise pressure for some concessions¹³.

It is true that the comparative characteristics of debtor countries, and the domestic policy aspects of these same countries and of the creditor bloc, should not be interpreted in a static or isolated manner, but in their dynamic interrelationships. Debtors want to pay as little as possible but at the same time maintain access to the credit market, while creditors try to sustain the flow of collections and especially to maintain the imbalance of power in the negotiation. Both deploy strategies over time. The threats imposed and the differentiated benefits offered by both blocs are part of the game, and their effectiveness depends on their "credibility". In turn, the collective character (of debtors or creditors) determines the "seriousness" of the threats or benefits: the very possibility of collective default terrifies

¹² ECLAC, for example, has published several reports reflecting the delicate situation associated with the debt problem (some of which have been reviewed in this article). However, the issue does not appear as a central theme in the position paper of the First Meeting of the Regional Conference on South-South Cooperation in Latin America and the Caribbean (ECLAC, 2023c). Debt is barely mentioned in the possibility of moving forward with potential debt-for-nature swaps.

¹³ Within the framework of the renegotiation of the terms of the Extended Facilities agreement signed by Argentina in 2022, Argentina has bet on obtaining alternative resources through swap credit extensions with China as well as access to funds from the BRICS bank. This strategy was implicitly questioned by the US ambassador in Argentina, Marc Stanley, considering that it implied concessions for other foreign investors (coming from China) in lithium, dams and hydrocarbons in unconventional deposits: that is, in key sectors to face the energy transition on a global scale.

creditors, while unilateral default, which concentrates all the political, commercial and financial reprisals of the creditor bloc, is less credible. Similarly, offering differentiated benefits to some debtors may generate a breakdown in the cooperative strategy, while granting benefits to all debtors would imply a recognition of the vulnerable position of creditors, encouraging debtors to request further concessions in the face of the evidence of the outcome of collective action, as happened in the context of the Cartagena Consensus (CIA 1986: iv).

Today we could think of a joint strategic planning for the prevention and containment of damages derived from possible sanctions. Exploring, *ex ante*, the financial and political availability of financial agents that could accompany the tumultuous period of negotiation with creditors, covering financial "bumps" when they occur, resorting, for example, to credit agencies outside the Bretton Woods institutions, would imply a precautionary measure. Also, differentiated incentives for potential free-riders must be prevented from being effective. One way to limit the potential for "carrots" may be to require compliance with the "pari passu" principle, which is deeply rooted in the Paris Club guidelines, in the jurisprudence on sovereign debt collection and in historical commercial-financial practices. On the one hand, debtor States could commit themselves to collectivize the benefits that each could obtain for its part. On the other hand, it should be recalled that offering a country differentiated conditions for debt restructuring, without objective economic reasons to justify it, implies a discriminatory practice prohibited by international law, which requires precisely the same treatment to be granted to other States ("most favored nation" principle).

Thus, there are elements that justify thinking about the confluence of debtor States in the LAC region to deal with the debt problem. It should not be assumed that there is any guaranteed success in this regard since the threats are multiple: however, the mere fact of starting down this path has been enough in the past to achieve concessions. What would happen if debtor States go further this time?

5. Conclusions

This article addressed the question of the need and feasibility of organizing a club of debtor States in LAC. To this end, a framework of conceptual analysis was developed based on the collective action problems that debtors aspiring to achieve certain levels of horizontal coordination may face, as well as on the practical lessons that emerge from historical experiences that involved notable political coordination efforts among sovereign debtors. The Cartagena Consensus in the eighties, with its vicissitudes and results, offers a learning quarry (Guzmán, Colodenco and Wiendenbrug, 2024). Africa also offers a learning experience in terms of sovereign debtors' efforts.

Borrower governments, if they want to change the rules of the game so as not to be systematic net losers, need to focus and make explicit the convergences regarding the impact of debt on their economies. It is possible to take advantage of past experience, but also of the current political moment of relaunching regional confluences (such as the call to discuss fiscal policy in Colombia, or the proposals for greater integration from Brazil) to build a common narrative. Likewise, they might promote robust and transparent public debates at the national level, in order to facilitate the construction of political majorities that support these initiatives. The participation of civil society is key to give density to the debate, to prevent it from being trapped exclusively in political indirect representation.

It is also necessary to carefully plan a strategy to deal with the "carrots" and "sticks" that the creditor bloc usually deploys (see CIA 1986) in the face of attempts to cartelize sovereign debtors, including a robust system of collective self-reliance and collective resilience, as it was discussed in 2023 in the "Quito Dialogue on Debt and Development: Towards Sovereign Debtors' Club and Structural

Transformation.” Such a strategy would include formalizing the principle of “*pari passu*” (which would oblige the sharing with others of the differentiated benefits obtained by certain debtors) as well as the *ex ante* agreement of emergency financial assistance lines with entities that are not part of the creditor bloc being negotiated with. The principle of cooperation between States can strengthen these proposals.

The need to explore alternatives for concertation among debtor countries in LAC today is due to the burdensome burden of debt, which in turn is often associated with orthodox economic conditionalities that not only aggravate the fiscal position of debtor countries but also have an adverse impact on the economic and social human rights of the populations. The need for convergence among debtor countries has a past on which to build a narrative for the future. Before it the urgency of investments in the face of climate change, the initiatives already underway in the region and existing integration experiences in other areas emerge. It is possible to explore and try to take advantage of the regional and global political momentum to promote a solution based on cooperation among debtor countries. The recently UN General Assembly resolution on “Towards a New International Economic Order” (A/77/445) passed in December 2022, which contents as well as the States that voted for and against it epitomize the post-neoliberal political horizon, stresses “the need to explore the *means and instruments* needed to achieve debt sustainability and the measures necessary to reduce the indebtedness of developing countries” (parag. 12) (emphasis added by the authors). One of these means/instruments might be a club of debtor States.

Besides the case for needed debt relief to debtor countries in order to be able to fulfill environmental and human rights obligations, enhancing collective bargaining power of debtor States seem to be crucial to effectively promote more comprehensive reforms of the international financial architecture, a debate that remains deadlocked by the creditors’ veto power.

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Why Has Growth Theory Been a Failure?

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Abstract

Why has growth theory been a failure? By growth theory, it should be understood the various approaches to economic growth, from Edward Denison's work in the 1950s and 1960s, to that of Robert Solow and Paul Romer. In short, why has the residual approach to growth been unsuccessful both empirically and policy wise, the latter being evidenced by the failure of policy worldwide to restore growth to its post-WWII levels. Drawing from the science of material processes, it argues that the core approach to modeling material processes in economics (i.e. neoclassical production theory) is orthogonal to those found in the material sciences in general, as well as to the basic laws of physics (classical mechanics, thermodynamics, kinetics), resulting in puzzles and paradoxes, the most celebrated of which is the Solow residual, the focus of growth theory for the past four decades. When a consistent approach is invoked, they virtually disappear, ushering in a new era, one in which growth is shown to be analogous to growth in other material sciences.

Keywords: Economic Growth, Material Sciences, Consilience

JEL Codes : O40, O47, O57, Q43.

1. Introduction

The slowdown in productivity growth in the mid-to-late 1970s (a.k.a. the Productivity Slowdown) constituted and continues to constitute the greatest challenge ever undertaken by the economics profession, the latter being defined as academic, government and professional economists. While the Great Depression was, in many ways, a more catastrophic event, it did not unleash a tsunami of research the way the Productivity Slowdown has. This owed to a number of factors including the primitive state of macroeconomics at the time, the lack of sophisticated analytical and empirical tools, and the glaring lack of data, resulting in work that was more speculative (as to the causes) than in what could be referred to as serious or scientific work. All of this had changed by the 1980s, when theory, empirical methods and data had evolved considerably.

Yet, despite the progress, the results have been, to put it mildly, disappointing. The evidence is there for all to see. Despite four decades of throwing virtually all the profession has at the problem, after pulling out all the stops, after holding no punches, the problem of economic growth remains whole. Perhaps the most telling piece of evidence is the abject failure of policy. Western industrialized nations have reinvented themselves, slashing government, signing free trade agreements, subsidizing research to the tune of trillions, rewriting the tax code with the wealthy and the corporate in mind,

transforming universities into technical colleges, and yet, nothing—in fact, growth rates continue to decline. In short, the past four decades of growth have been an unqualified failure both on the theoretical front and in policy circles.

This paper asks the obvious question why? Why has growth theory been a failure? After all, growth *per se* is understood in virtually all other material sciences. Take, for example, the plant sciences where it has been understood for centuries, or in cellular biology. In short, there is no other material science where growth is not understood today, except in economics. In this paper, it will be argued that the main reason lies with the orthogonality of economic growth models to the physics of material processes in general. In other words, the lack of consilience with the laws of the universe is largely to blame. On a more upbeat note, once the basic principles of classical mechanics, thermodynamics and kinetics are incorporated into the analysis, it can be shown that the myriad puzzles and paradoxes disappear. Put differently, once the economics profession embraces the elements of basic science, it will join the rest of the material sciences in having understood growth.

The paper is organized as follows. To begin with, we present a consilient theory of growth in the material sciences, the energy-organization framework. This will then be followed by a critical review of production theory and of growth theory, starting with Adam Smith. The upshot is that most of what today constitutes the basis of the theory of production/growth violates basic physics. That this be the case is highlighted by the presence, over the course of the past two centuries, of discordant voices and approaches.

2. The Energy-Organization Framework

In virtually every material process-based field/discipline, the process of growth is not only well understood, it has been and is systematically reduced to its thermodynamic and/or kinetic equivalent (biology, ecology, demography). In short, growth is either a function of growth in energy availability/use—whether it be within a stationary or non-stationary environment—or an increase in second-law efficiency. The quintessential example is photosynthesis where the growth of biomass is a function of solar radiation/light, the latter being the force that acts on biomass to produce carbohydrates/sugars.

Table 1: Material Processes, Energy and Organization Inputs

Material Process	Energy Input	Organizational Input
Chemical Processes	Heat	Kettles, Laddles
Manufacturing Processes	Kinetic Energy	Simple and Complex Tools
Photosynthesis	Solar Radiation	Molecular Structures and Raw Materials
Mitochondria	Glucose Molecule	Structure of Raw Material

In fact, essentially all material sciences focus on growth and hence have developed analytical frameworks to describe and understand it. Take, for example, biology, specifically plant biology which has modeled growth in terms of photosynthesis, where solar radiation powers a series of chemical

reactions which result in the production of glucose. As in all other material sciences, energy is the essential factor input. Unlike material processes as studied by engineers, there are no tools (simple or complex) involved. Similarly, unlike cell growth where the set of instructions is contained in the organism's RNA or DNA, there is no specific set of instructions nor of supervision. Table 1 presents a list of material processes and the work-energy and non-work-energy-based factor inputs.

Beaudreau (1998) outlined a consistent approach to understanding material processes and growth in general—that is, across disciplines. The energy-organization (hereafter EO) approach models material processes in terms of two universal factor inputs, namely broadly-defined energy and broadly defined organization, the former being physically productive, while the latter being organizational. In keeping with basic mechanics and thermodynamics, energy and energy alone does work, the implication being that all other factors are organizational in nature.

$$W(t) = \eta[T(t), S(t), I(t)]E(t) \quad (1)$$

The latter, in turn, is a function of $S(t)$ the supervisory input, $T(t)$, tools, and $I(t)$ information. In keeping with basic physics, the latter three factor inputs are not physically productive, but rather are organizational in nature, affecting second-law efficiency, shown here as η .¹ Better tools (i.e., Watt's external condenser, the Boulton-Watt dual-action steam engine, electric unit drive) increase energy efficiency by minimizing losses. As η is bounded from above, it stands to reason that organizational innovations will have limited effect on output and output growth (Beaudreau and Lightfoot 2015). Equation 1 provides a simple description of the EO approach to material processes, with $E(t)$ being the energy input and η being the thermodynamic concept of second-law efficiency. This can be seen as a measure of energy productivity, which in this case, is a function of the relevant organizational variables, including tools ($T(t)$, supervision $S(t)$, and information ($I(t)$).² Beaudreau (1998) maintained that this simple model was universal in scope, being applicable to all material processes.

The EO approach to growth is as simple as it is straightforward, namely that growth of the output is an increasing function of growth of the energy input as well as growth/innovations in η , second-law efficiency. The key as far as we are concerned is the universality of Equation 1. Any and all growth processes in the material sciences is/are predicated on growth in the energy input, and, the case that concerns us here, growth in the organizational context. For example, in the case of wealth-related material processes, growth requires an increase in energy as well as an equivalent increase in tools and supervision—conventional capital and labor.³

This raises the question of input productivity or, put differently, the contribution of factor inputs to output and growth. In keeping with basic mechanics and thermodynamics, the only physically productive factor input is energy/force. All others are organizational inputs, which define the material process, but are not productive in the traditional sense.⁴ Put differently, they increase with output, but are not the

¹ One could argue that they are organizationally productive in the sense that they affect the “quality” of the material process which has a bearing on second-law efficiency—that is, the productivity of energy.

² While all are ultimately energy based, the corresponding energy has no bearing on output. For example, labor or supervision is energy-based (workers or control devices). Information, specifically information transmission, storage and retrieval, is also energy based.

³ In artisanal material processes, the energy input is provided by human beings, specifically by human muscles. See Beaudreau (1998) for a detailed taxonomy of material processes and energy inputs.

⁴ For more on the role of tools in material processes, see Alting (1994) and Beiser (1983).

ultimate cause.⁵ 1921 Chemistry Nobel prize laureate-turned economist Frederick Soddy captured the essence of material processes—animate and inanimate—in the following parable.

At the risk of being redundant, let me illustrate what we mean by the question “How do men live?” by asking what makes a railroad train go? In one sense or another, credit for the achievement may be claimed by the so-called “engine-driver,” the guard, the signalman, the manager, the capitalist, the share-holder,-or again, by the scientific pioneers who discover the nature of fire, by the inventors who harnessed it, by labour which built the railroad and the train. The fact remains that all of them, by their collective effort could not drive the train. The real engine-driver is the coal. So, in the present state of science, the answer to the question how men live or how anything lives, or how inanimate nature lives, in the sense in which we speak of the life of a waterfall or of another manifestation of continued liveliness, is, with few and unimportant exception, “By sunshine.” Switch off the sun and a world would result lifeless, not only in the sense of animate life, but also in respect of by far the greater part of the life of inanimate nature. (Soddy 1921, 4)

In the next section, the EO framework will be used to examine critically, both production and growth theory, from Adam Smith to Robert Solow.

3. A Critical Overview of Production and Growth Theory

Growth theory, defined as the systematic analysis of growth and growth rates, is a relatively recent development, dating back to the post-WWII period. Previously, growth was assumed to be part of production theory, where factors contributing to increased GDP were enumerated. The analysis was mostly descriptive but couched in either a classical or neoclassical framework. In this section, we examine both the history of production theory as well as its scientific validity.

Our starting point is Adam Smith’s *An Inquiry into the Nature and Causes of the Wealth of Nations*, published in 1776. Our focus is Chapter 1, where he presents what would become the classical theory of wealth. In short, output or wealth was an increasing function of the labor input, with the latter’s productivity being governed by specialization-induced factors, including (i) learning-by-doing, (ii) reduced wasted time changing tasks and (iii) the use of machinery. These factors would affect labor productivity, and thus affect output.

With the benefit of hindsight, this was a somewhat odd way to model the introduction of the steam engine, which he referred to as fire power. In actual fact, the steam engine would relieve workers of work in the physical sense, as they would now become organizational inputs, overseeing steam engine-powered material processes. Yet, he would ascribe the increased output (productivity) to labor, arguing that specialization (code for industrialization) would make workers better off, and not worse off as many at the time maintained. From that point on, the phenomenal growth in Great Britain’s wealth (i.e., the wealth of the nation) would be tied to growth in the work performed by coal.

Yet ironically, coal would be absent from the analysis for centuries. Which begs the question, why? We contend that the reason lies with Smith’s ultimate purpose, namely of (i) convincing workers of the advantages of specialization and thus of the steam engine and (ii) making a case for free trade which

⁵ In most material processes, organizational inputs are minimal (e.g. photosynthesis).

would increase the “extent of the market” and thus accelerate specialization. In other words, it had nothing to do with the current “scientific” endeavor of understanding material processes. Put differently, classical production theory was more propaganda than hard science.

The next major development was neoclassical production theory, which dates back to the 1870s, when William Stanley Jevons published the *Theory of Political Economy*. In essence, it was a response to the radicals (e.g., Marx, Engels) who maintained that profits were a form of theft given that labor was the only productive factor input. The radicals were, in actual fact, classical in their views on production as output was an increasing function of labor. Capital’s role was obscure, being nested in labor productivity.

Thus, by a simple wave of a wand, or flick of a pen, capital entered the production function and was assigned a marginal, average and total productivity, thus legitimizing profits and fending off the growing radical challenge. Again, as was the case with Smith and Classical production theory, Jevons’ neoclassical framework was not the result of a quest to understand the science of material processes but rather, a retort to the radicals. Instead of falsifying the Classical view according to which labor was physically productive, he—and other neoclassical writers—added another non-physically productive factor input to the analysis of the origins of wealth.

The next milestone was the work of Charles Cobb and Paul Douglas in the mid-1920s. In 1928, the two published the first set of estimates of the neoclassical production function, specifically, the labor and capital output elasticities. Assuming a twice differentiable, homogenous of degree one production function, they obtained values of 0.75 and 0.25 for labor and capital’s output elasticities, respectively. Their production function also included a scalar, A , which they argued captured technology. This was a momentous development as it lent credibility to the underlying theory as well as provided hard numbers.

Again, like Smith and Jevons, Paul Douglas’ motives were not so much scientific as they were political. In actual fact, he alongside numerous others in the Progressive movement in the U.S. believed that productivity growth had outstripped wage growth. To justify his position, he felt that hard data would be required. In short, he sought to prove the existence of law or regularity according to which wage income should, at all times, represent 75 percent of national income, a task he would spend the rest of his academic career pursuing.

Fast forward to the post-Great Depression and post-WWII period when the issue of macroeconomic dynamics would become front and center. According to British economist Roy Harrod, the Keynesian model was an incomplete description of the business cycle and of the economy as it was static. To his way of thinking, the analysis should be dynamic and include growth. Thus was born what would become known as the Harrod-Domar growth model. To accomplish this feat, he started with a fixed-proportions, capital-labor production function. This would lead to a model of equilibrium growth which required that s/v be equal to n , or s , the ratio saving to income, divided by the v , capital-output ratio, be equal to n , the rate of growth of the labor force. Implicitly, Harrod and Domar assumed that capital and labor were both productive and the source of wealth.

The razor’s edge problem and Harrod’s claim that Western industrialized economies were inherently unstable and prone to crises, led Robert Solow and Trevor Swan to reformulate the Harrod-Domar model by assuming a variable v , which, not surprisingly eliminated the problem. The result was the Solow-Swan growth model. Again, with the benefit of hindsight, what was a response to a macroeconomic problem or query, would go on to constitute the core model of economic growth. Put differently, like Smith and Jevons, these writers had not set out explicitly to uncover the scientific

underpinnings of wealth creation but rather, were intent on resolving an outstanding conundrum. The resulting account of growth (i.e., growth theory) was simply a by-product.

The upshot of this short history of production and growth theory is straightforward, namely that what constitutes the core of production and growth theory was, in actual fact, a by-product of a series of contributions motivated by anything but uncovering the underlying scientific principles of material processes. Smith, the pamphleteer, wanted to sway public opinion, Jevons wanted to rescue capitalism, Douglas wanted to give teeth to the Progressive agenda, Harrod wanted to prove instability while Solow wanted to refute the latter. Not surprisingly, the final product left and leaves much to be desired.

This raises the obvious question, what, if anything, does contemporary growth theory explain? By contemporary growth theory, it should be understood, the view that labor, capital and a residual are the cornerstones of growth. Given that both labor and capital are organizational factor inputs and thus, non-physically productive, it stands to reason that from a physical productivity point of view, contemporary growth theory explains virtually nothing as the third element is the residual, which as its very name implies, is non-explanatory. Labor isn't physically productive, nor is capital, making for a situation in which neither of the three cornerstones is able to account for growth.

We would, however, be amiss to maintain that the past two centuries have been a bust. After all, there have been attempts at a more scientific understanding of production and growth. We now turn and examine some of these.

4. Missed Opportunities

The past two centuries have witnessed the evolution of material sciences, from its origins in Newtonian physics, to classical mechanics, to thermodynamics and finally, to kinetics (translational, rotational, chemical). Originally known as natural philosophy—as opposed to moral philosophy—the material sciences soon broke off into a number of subfields, including applied physics, mechanics, engineering and the fields of chemistry and biology. All, however, were grounded in the laws of mechanics, thermodynamics and kinetics.

While mainstream thought in general ignored these developments, there were exceptions, some more notable than others. In this section, we present a handful of these, ranging from Charles Babbage's 1832 masterpiece "On the Economy of Machinery and Manufactures," to 1923 Nobel Prize laureate (Chemistry) Frederick Soddy's bold attempt to rewrite production theory, "Cartesian Economics'." The upshot is simple, namely that not all political economists were impervious to the developments in the material sciences. However, as we shall argue, many chose to ignore them for ideological/political reasons.

4.1 Charles Babbage's On the Economy of Machinery and Manufactures 1832

Perhaps the earliest attempt at invoking basic science as a guide to understanding industry was that of Charles Babbage in 1832. In *On the Economy of Machinery and Manufactures*, he provided detailed scientific descriptions of the new technology. Consider, for example, the following excerpt where classical mechanics is used to illustrate the contribution of wind, water, and steam.

Of those machines by which we produce power, it may be observed, that although they are to us immense acquisitions, yet in regard to two of the sources of this power, the force of wind and of water, we merely make use of bodies in a state of motion by nature; we change the directions of their movement in order to render them subservient to our purposes, but we neither add to nor diminish the quantity of motion in existence. When we expose the sails of a windmill obliquely to the gale, we check the velocity of a small portion of the atmosphere, and convert its own rectilinear motion into one of rotation in the sails; we thus change the direction of force, but we create no power....The force of vapour is another fertile source of moving power; but even in this case it cannot be maintained that power is created. Water is converted into elastic vapour by the combination of fuel. (Babbage 1832, 15)

Interestingly, he devoted a whole chapter to speed or what he referred to as “velocity.” Chapter 4, entitled “Increase and Diminution of Velocity,” showcased using industry-specific examples the role of increased machine speed as a key feature of mechanization.

In turning from the smaller instruments in frequent use to the larger and more important machines, the economy arising from the increase in velocity becomes more striking. In converting cast into wrought iron, a mass of metal, of about a hundred weight, is heated almost to white heat and placed under a heavy hammer moved by water or steam power. This is raised by a projection on a revolving axis; and if the hammer derived its momentum only from the space through which it fell, it would require a considerably greater time to give a blow. But it is important that the softened mass of red-hot iron should receive as many blows as possible before it cools, the form of the cam or projection on the axis is such, that the hammer, instead of being lifted to a small height, is thrown up with a jerk, and almost the instant after its strikes a large beam, which acts as a powerful spring, and drives it down on the iron with such velocity that by these means about the double the number of strokes can be made in a given time. (Babbage 1832, 26)

Whereas previous writers referred to specialization, Babbage provides a detailed account of the role of power in material processes in general, and the role of steam power in U.K. manufacturing. Further, he perspicaciously was the first to formalize the role of rotary motion/power in material processes, alluding to the importance of velocity or put differently, machine speed. To Babbage, science mattered. Unfortunately, Babbage did not matter to political economy as evidenced by his absence from the overall record.

4.2 Frederick Soddy's 1921 Cartesian Economics

Another early 20th century dissenter was British Nobel-prize laureate chemist Frederick Soddy, who after his pioneering work with Ernest Rutherford on atomic transmutation turned his attention to economics, largely in response to the alleged “misspecification” of production theory, more to the point, to the absence of energy from the analysis. The gist of his critique can be found in the following allegory:

At the risk of being redundant, let me illustrate what I mean by the question, How do men live? by asking what makes a railway train go. In one sense or another the credit for the achievement may be claimed by the so-called ‘engine-driver’, the guard, the signalman, the manager, the capitalist, or share-holder, or, again, by the scientific

pioneers who discovered the nature of fire, by the inventors who harnessed it, by labour which built the railway and the train. The fact remains that all of them by their united efforts could not drive the train. The real engine-driver is the coal. So, in the present state of science, the answer to the question how men live, or how anything lives, or how inanimate nature lives, in the sense in which we speak of the life of a waterfall or of any other manifestation of continued liveliness, is, with few and unimportant exceptions, By sunshine. Switch off the sun and a world would result lifeless, not only in the sense of animate life, but also in respect of by far the greater part of the life of inanimate nature. The volcanoes, as now, might occasionally erupt, the tides would ebb and flow on an otherwise stagnant ocean, and the newly discovered phenomena of radioactivity would persist. But it is sunshine which provides the power not only of the winds and waters but also of every form of life yet known. The starting point of Cartesian economics is thus the well-known laws of the conservation and transformation of energy, usually referred to as the first and second laws of thermodynamics. (Soddy 1921, xi)

In short, according to Soddy, energy is the cornerstone of all human activity, including production. Labor, capital, information, technology etc. are all accessory inputs, necessary for but not the actual source of wealth. Despite much promise, the proposed Cartesian economics, based on the laws of basic physics (mechanics and thermodynamics) failed to make inroads into mainstream economics.

4.3 F.G. Tryon

To many observers in the early 20th century, the U.S. was in the midst of an industrial revolution, one to which the economics profession appeared to be oblivious. F.G. Tryon of the Institute of Economics (Brookings Institution) was among the first to point to the incongruity between production processes as modeled in economics and those observed in early 20th century America.

Anything as important in industrial life as power deserves more attention than it has yet received by economists. The industrial position of a nation may be gauged by its use of power. The great advance in material standards of life in the last century was made possible by an enormous increase in the consumption of energy, and the prospect of repeating the achievement in the next century turns perhaps more than on anything else on making energy cheaper and more abundant. A theory of production that will really explain how wealth is produced must analyze the contribution of this element of energy.

These considerations have prompted the Institute of Economics to undertake a reconnaissance in the field of power as a factor of production. One of the first problems uncovered has been the need of a long-time index of power, comparable with the indices of employment, of the volume of production and trade, of monetary phenomena, that will trace the growth of the factor of power in our national development [Tryon (1927),281].

4.4 Technocracy as Described by Howard Scott

In little time, this incongruity reached academia, specifically Columbia University where a group of engineers, known as the *Technocacy Alliance*, outrightly rejected mainstream approaches to

understanding wealth (essentially neoclassical production theory), arguing that they ignored mechanics, thermodynamics, process engineering and with the then state of the art regarding material processes in general.⁶

Foremost in the minds of the “dissidents” was the fact that while America’s capacity to produce wealth was increasing, actual wealth appeared to be stagnant, prompting various calls to action. One such call came from the engineering department at Columbia, where Walter Rautenstrauch and Howard Scott launched the technocracy movement. In short, it contended that mainstream economics in general and production theory in particular were irrelevant, not to mention incomplete and unscientific, and were in need of a major overhaul. The latter would be grounded in thermodynamics in general and in energy in particular. In short, while perhaps not fully aware of it, the Technocrats were attempting to steer economics back on to a course similar to that taken by thermodynamics in the 19th century, one based on the scientific underpinnings of material processes in economics.

For example, in *Introduction to Technocracy*, by Howard Scott, published in 1933, the first 10 pages contained a rendition of basic applied physics, thermodynamics and kinetics. This would then constitute the basis of the new science of wealth, one based on the laws of physics.

The eighteenth century saw the introduction of the powered machine, which was first conceived as an extension of the hand operations of craftsmen. The close of the nineteenth century witnessed the machine process occupying a dominant place in the technological scheme and reshaping men’s habits and methods of thinking. The turn of the century marked the introduction and the accelerating rise, under guidance of science of the modern, continuous technological processes of production. In this new industrial order, the machine was no longer conceived as an extension of the hand tool; it became a moving mechanical element in a sequence of events, the course and rate of which had been arranged and ordered in strict accordance with the exact quantitative calculations of science. Men in the fields of scientific inquiry and technological research, the same as those directly engaged in technological employment, gradually ceased to think in terms of workmanlike efficiency of a given cause working to like effect: they began to think in terms of process. (Scott 1933, 8)

As mentioned, the driving force was the view that energy-related innovations (electric unit drive in particular) had increased America’s ability to produce without a concomitant increase in income and expenditure, leading to stagnation, unemployment and a full-blown depression. The movement offered both a detailed diagnosis of the problem as well as a series of corrective measures/reforms (an energy monetary standard, guaranteed income). It, however, lost much of its appeal with the rise of Keynesian economics, which provided a less radical fix. In short, animal spirits replaced the energy shock as the cause of the depression.

Such boldness, especially from non-practitioners, was met with great resistance from the profession. For example, University of Chicago economics professor Aaron Director, in a pamphlet entitled, *The Economics of Technocracy*, seriously doubted its usefulness, arguing that mainstream economics and production theory was better suited to analyze the issues it sought to address. To begin, he summarized Technocracy in terms of six points:

⁶ While the Technocracy movement went through a number of iterations, organization-wise, our analysis will refer to the movement in general.

The importance of energy: —Through the expenditure of energy we convert all raw materials into products that we consume and through it operate all the equipment that we use.” This, of course, has always been familiar to us, except that it was stated in terms of work, and not of energy. The great merit of the latter term is the possibility of dragging in the Law of Conservation of Energy and this marrying physics to the social mechanism.

Energy can be measured, and the unit of measurement is always the same, while the dollar varies from time to time.

The chief distinction between our society and that of all previous societies is the much greater amount of energy which can be generated. This has always been recognized by the designation of our civilization as the machine era.

With every increase in the amount of mechanical energy the need for labor decreases. The present depression marks the end of an era, since the increase in mechanical energy has at last become so great that, regardless of what happens, the need for human labor will rapidly decline.

Does it follow, therefore, that the price system must break down, and that only the engineers can run a mechanical civilization. (Director 1933, 8)

He then proceeded to re-examine, using standard neoclassical analysis, each of these points. In keeping with the 19th century tradition of equating energy with machinery, the shock was cast in terms of “technical progress,” and not of energy deepening. This was then followed by a Ricardian-inspired analysis of the effects of “technical progress” on costs, wages and prices.

Competition, he argued, was a sufficient condition for full employment.

On the other hand, the technocrats maintained that a more scientific utilization of existing equipment would result in a much larger product: “It is only necessary to insist that the number of engineers in industry far outweigh the number of economists, and if these engineers are to run industry in the future, they should be competent to point out methods of improving efficiency. It is not enough to hide behind a barrage of words. It should be patent to the most critical observer that the one thing which the individual enterprise under competitive conditions does strive for is to reduce its cost, regardless of the consequences on employment.’ (Director 1933, 16)

Having concluded that “technical progress is not incompatible with full employment,” he proceeded, in Chapter VII, to debunk the view that the Great Depression was the result of energy-based technological change. This, metaphorically speaking, is where the gloves came off. First, he, in the tradition of Say and Ricardo, ruled out underincome. Output, he argued, is identically equal to income, whether in the form of money or in kind.

If there were no commercial banking system, the national income would be distributed for consumption goods and the production of additional equipment in accordance with the desires of the community. The output of industry is equal to the income of the laborers employed in it and of the property owners whose capital is invested in it. Clearly, if entrepreneurs borrowed funds directly from the income receivers, they could

not continue to produce capital equipment in excess of the amount which income receivers were willing to save. (Director 1933, 21)

In short, according to Director, Technocracy offered nothing new, and, more importantly, was riddled with the most elementary of oversights and errors. Energy was nothing new, and, more importantly, presented no particular challenge to mainstream political economy. Technological progress, in this case, electric drive, increases, in a commensurate fashion, income, wages and profits. The causes of the Great Depression, he argues, lie elsewhere, notably in “the war, the resulting debts, and tariffs.”

4.5 Nicholas Georgescu-Roegen's The Entropy Law and the Economic Process 1971

Nicholas Georgescu-Roegen's *The Entropy Law and the Economic Process* (1971) is another example of basic science at the core of economics. Its premise is straightforward, namely that thermodynamics is based on two laws: The first law states that energy is neither created nor destroyed in any isolated system (a conservation principle). The second law of thermodynamics – also known as the entropy law – states that energy tends to be degraded to ever poorer qualities (a degradation principle).

Georgescu-Roegen argued that the relevance of thermodynamics to economics stems from the physical fact that man can neither create nor destroy matter or energy, only transform it. The usual economic terms of 'production' and 'consumption' are mere verbal conventions that tend to obscure that nothing is created and nothing is destroyed in the economic process – everything is being transformed

He recognized that capital as defined in economics was not physically productive. Rather, that role was assumed by energy. In Georgescu-Roegen's terminology, energy may have the form of either a stock factor (mineral deposits in nature), or a flow factor (resources transformed in the economy); but never that of a fund factor (man-made capital in the economy). Hence, in response to Robert Solow's 1974 claim that capital could be substituted for energy, he argued that such a substitution is physically impossible.

Unfortunately, his message was lost on production theory which remained unfettered (i.e., neoclassical). While entropy, or the degradation of matter is today recognized, especially in ecological economics, the role of negentropy in production continues to be ignored.

4.6 Karl Marx's Das Kapital 1867

Karl Marx's *Das Kapital*, published in 1867, is today considered to be a classic in 19th century political economy, having laid out the bases for the labor theory of value, the rate of surplus value and Marxian economics in general. Starting from classical production theory where wealth is an increasing function of the labor input, he went on to elaborate a theory of the laws of motion of capitalism based on technological change, declining wages and rising profits. Capitalism, he argued, contained the seeds of its own destruction. Policy-wise, the implications were straightforward: profits were a form of theft and justice could only be done if surplus value was returned to its rightful owners (and only productive factor input).

The bulk of these ideas are found in the first few chapters of *Das Kapital*. However, in Chapter 15, entitled *Machinery and Modern Industry*, he provided an altogether different account of production, one based on classical mechanics, and one that could very well rival any engineering manual of the

day. In short, he described, at length, the steam engine and force in general as the motive power and force behind industrial production. Consider the following quotation, taken from Chapter 15 of Volume 1 of Karl Marx's *Das Capital*, entitled *Machinery and Modern Industry*.

Mathematicians and mechanics, and in this they are followed by a few English economists, call a tool a simple machine, and a machine a complex tool. They see no essential difference between them, and even give the name of machine to the simple mechanical powers, the lever, the inclined plane, the screw, the wedge, etc. As a matter of fact, every machine is a combination of those simple powers, no matter how they may be disguised. From the economic standpoint this explanation is worth nothing, because the historical element is wanting. Another explanation of the difference between tool and machine is that in the case of a tool, man is the motive power, while the motive power of a machine is something different from man, as, for instance, an animal, water, wind, and so on. According to this, a plough drawn by oxen, which is a contrivance common to the most different epochs, would be a machine, while Claussen's circular loom, which, worked by a single labourer, weaves 96,000 picks per minute, would be a mere tool. Nay, this very loom, though a tool when worked by hand, would, if worked by steam, be a machine. And since the application of animal power is one of man's earliest inventions, production by machinery would have preceded production by handicrafts. When in 1735, John Wyatt brought out his spinning machine, and began the industrial revolution of the 18th century, not a word did he say about an ass driving it instead of a man, and yet this part fell to the ass. He described it as a machine "to spin without fingers."

All fully developed machinery consists of three essentially different parts, the motor mechanism, the transmitting mechanism, and finally the tool or working machine. The motor mechanism is that which puts the whole in motion. It either generates its own motive power, like the steam-engine, the caloric engine, the electromagnetic machine, etc., or it receives its impulse from some already existing natural force, like the water-wheel from a head of water, the wind-mill from wind, etc. The transmitting mechanism, composed of fly-wheels, shafting, toothed wheels, pullies, straps, ropes, bands, pinions, and gearing of the most varied kinds, regulates the motion, changes its form where necessary, as for instance, from linear to circular, and divides and distributes it among the working machines. These two first parts of the whole mechanism are there, solely for putting the working machines in motion, by means of which motion the subject of labour is seized upon and modified as desired. The tool or working machine is that part of the machinery with which the industrial revolution of the 18th century started. And to this day it constantly serves as such a starting-point, whenever a handicraft, or a manufacture, is turned into an industry carried on by machinery. (Marx 1867, 261).

One wonders how and indeed why the writer who penned these words and thoughts could go on to defend the labor theory of value and all that it implies (i.e., its many derivatives). Clearly, Marx had devoted a considerable amount of time understanding the physics of material processes, specifically focusing on classical mechanics. In short, he understood the role of power, as well as the notions of simple and complex machines.

All of this, however, was inconsequential as it was summarily ignored, sacrificed on the ideological altar of distribution issues and concerns. Had he taken his analysis to its logical conclusion, he would have concluded that neither labor (supervisory input) nor capital (tools) were physically productive, and

that only energy/force/power was. Distribution would involve sharing the final output, not on productivity grounds, but on the basis of a bargaining process (i.e., bargaining power).

4.7 William Stanley Jevons' *The Coal Question and The Theory of Political Economy*

As pointed out, Karl Marx sacrificed science and conscience on the ideological altar of distribution, with the known consequences and results. Clearly, the world would have been better off had science mattered to him. Another such case is that of William Stanley Jevons who today stands as the key architect of modern neoclassical economics. In 1865, he published a short book entitled *The Coal Question; An Inquiry Concerning the Progress of the Nation, and the Probable Exhaustion of Our Coal Mines*. As the title suggests, Jevons was very much concerned about what was an obvious concern in the case of the finite resource that was coal, namely its eventual exhaustion. Clearly, he viewed coal as one of, if not the key factor input in the industrial revolution and thus, of the industrial era. Consider his opening lines:

Day by day it becomes more evident that the Coal we happily possess in excellent quality and abundance is the mainspring of modern material civilization. As the source of fire, it is the source at once of mechanical motion and of chemical change. Accordingly, it is the chief agent in almost every improvement or discovery in the arts which the present age brings forth. It is to us indispensable for domestic purposes, and it has of late years been found to yield a series of organic substances, which puzzle us by their complexity, please us by their beautiful colours, and serve us by their various utility.

And as the source especially of steam and iron, coal is all powerful. This age has been called the Iron Age, and it is true that iron is the material of most great novelties. By its strength, endurance, and wide range of qualities, this metal is fitted to be the fulcrum and lever of great works, while steam is the motive power. But coal alone can command in sufficient abundance either the iron or the steam; and coal, therefore, commands this age—the Age of Coal.

Coal in truth stands not beside but entirely above all other commodities. It is the material energy of the country—the universal aid—the factor in everything we do. With coal, almost any feat is possible or easy; without it we are thrown back into the laborious poverty of early times. (Jevons 1865, 14).

To Jevons, coal or energy was the mainspring of modern civilization, being the source of fire, mechanical motion and chemical change. Clearly, at this point in his career, science mattered. As he put it, “coal in truth stands not besides but entirely above all other commodities.” Fast forward to 1872, five years after the publication of Marx's *Das Kapital* which had stood classical economics, especially distribution, on its head, and the publication of his magnum opus, *The Theory of Political Economy* which would go on to define modern neoclassical economics. Surprisingly, but not unexpectedly, coal/energy is conspicuous by its very absence. Seven years later, coal had gone from hero to zero. Wealth was an increasing function of labor and capital, period. More importantly, capital was decreed to be physically productive, thus not only contravening classical mechanics, but providing a pat response to the growing radical movement. Clearly, by then science no longer mattered as ideological considerations took precedence over intellectual integrity.

5. Why Were Advances in Material Sciences Ignored?

Why is it that dialogue across what are related fields is, for all intents and purposes, non-existent in economics? Why haven't process engineers teamed up with growth theorists to understand the intricacies of past (and hopefully future) growth? Why have the very people who have a firsthand understanding of the very processes underlying growth been left out, not even consulted? In this section, we present a number of non-mutually-exclusive reasons, from the early history of the discipline, to the ideology and propaganda of the 19th century, to the medium of diffusion of results (journals as opposed to books), to the creation of a Nobel prize.

5.1 *Tabula Rasa*

The first reason we advance has to do with the very history of the discipline, namely that it predates its tributary disciplines. Economics has a history that dates back to the mid-18th century, a time when thermodynamics was non-existent. Moreover, early work such as Adam Smith's "An Inquiry into the Nature and Causes of the Wealth of Nations" was about the newly-discovered, Watt steam engine. As such, when Smith was confronted with the daunting task of describing the effects of the steam engine on wealth, he had to resort to primitive notions, couching his analysis in what was a Paleolithic, labor-centric view of production, one that focused on labor. This became known as the classical theory of production, with a single factor input, namely labor. Chapter 1 of the *Wealth of Nations* enumerates the various ways in which specialization (code for the adoption of the steam engine) increases labor productivity.

From a purely Newtonian point of view, this was a breach, as the steam engine had, for all intents and purposes, replaced labor as the source of work, transforming it into a mere organizational factor input, overseeing the workings of machinery—what Alfred Marshall would, a century later, refer to as machine operatives. That this be the case is not surprising as Smith, a moral philosopher, was not a natural philosopher (i.e., schooled in Newtonian physics). Not helping matters was the fact that steam as a force was not well understood—in fact, not understood at all. It would take a century before thermodynamics, the science of heat, would do so.

However, economics or political economy could not wait. The introduction of the steam engine and its widespread adoption in the 19th century with all the associated problems and challenges, obviated the need for a science, however imperfect or unscientific. Among the most pressing problems was the business cycle and the apparent failure on the part of England to make a successful transition to the new, higher GDP in response to the steam engine. Rather than greater wealth, the steam engine ushered in periods of higher unemployment and misery.

5.2 *The Labor Theory of Value and the Problem of Existence and Stability of Equilibria*

This, however, raises an interesting question, namely that while it is true that economics predates the fundamental fields, why were their insights not incorporated at a later date? In other words, why did economics not evolve, why did it not update itself? The answer, we argue, lies with two developments, namely the rise of radical economics in the early-to-mid 19th century with Karl Marx as its main proponent, and second, the resulting allegation that private market economies were inherently unstable (i.e., Harrod Instability), and more importantly, contained the seeds of their own destruction. Both of these were instrumental in the widening divide between economics and fundamental science, notably thermodynamics.

Karl Marx's magnum opus, *Das Kapital* published in 1867 was a turning point of sorts, as it turned classical production theory on its head. If labor was the only productive factor input, then it stood to reason that the owners of labor were the only ones entitled to the spoils. In short, profits were a form of theft. This followed from the fact that capital was not physically productive. The classical response was swift, coming with the publication of William Stanley Jevons' *The Theory of Political Economy* in 1872 where capital was simply decreed to be productive. Using the language of thermodynamics, it was decreed to be physically productive, complete with a marginal productivity, thus justifying profits as legitimate, both physically and legally. The result was neoclassical production theory based on two, non-physically-productive factor inputs.

This, we maintain, *de facto* stifled progress in the field as it provided the long-sought legitimization of profits not as a form of theft, but as being earned or merited. Any and all critiques were dismissed outright, as they constituted a clear and present threat to the established order.

Another factor that *de facto* stifled progress was the problem of equilibrium, specifically system-wide, macroeconomic or general equilibrium. One of the key predictions of radical economics was the inevitability of overall, systemic collapse. According to Karl Marx, capitalism contained the seeds of its own destruction. Given the recurrent downturns in U.K. GDP throughout the 19th century, some greater than others, this became a going concern. Clearly, the onus was on classical and neoclassical economists to prove, mathematically or otherwise, that private market economics could reach a full-employment equilibrium, one that was unique and most importantly, stable. From the late 19th century onwards, the quest to prove that such an equilibrium existed would occupy the thoughts of leading figures such as Leon Walras and Vilfredo Pareto.

However, as their work makes clear, the task was far from obvious. In short, to arrive at such a proof, the starting point had to be simple, namely excess demand functions that were analytical. And this required a simple model of consumer and producer behavior. This would continue to be the case in the 20th century when new methods from topology would be used (Brouwer and Kakutani's fixed-point theorems).

As has been the case in all highly-formalized work involving advanced optimization techniques, the starting point had to be as simple as possible. This, we argue, has contributed to stifling even further, the emergence of more consistent models of consumer and producer behavior. Put differently, mathematical elegance and tractability pre-empted more realistic approaches to consumer and producer behavior. A case in which formalization acted and continues to act as a constraint on progress.

Moreover, this had a rather pernicious effect on first principles. Specifically, the profession reverse engineered, as it were, the results of GE analysis to first principles—consumer and producer theory. Simple $\max U(x)$ and $\max \pi(q)$ became the standard in microeconomics, thus pre-empting any and all refinements. After all, anything other would negate GE analysis and results.

5.3 The Decline of Pamphlets/Treatises/Volumes and the Rise of Scholarly Journals

For most of its history, the findings in economics were diffused through either pamphlets or books. In fact, most of that which today constitutes the core curriculum in modern economics originated in pamphlets or books, not in journal articles. While this to most will appear or seem irrelevant or inconsequential, we believe that it has an important bearing on the evolution of economics. Specifically,

journal articles are not, in general, conducive to Kuhnian-like paradigm shifts in thought, owing in large measure to the length and purview of the contents. In short, journal articles are more conducive to the propagation of, the refinement of, and the testing of the canons of the field/science. For example, in economics, articles on consumer theory seek to validate, refine, or extend the basic utility maximization model. To my knowledge, there is not one article that single-handedly changed the course of a field or the profession itself.

Historically, economic journals evolved from being a combination of book reviews and short articles/comments to exclusively devoted to the latter. Take, for example, the *American Economic Review*, founded by a group of politically-minded scholars, which in its early years devoted more space to book reviews as it did to articles. Figure 1 shows the contents of the inaugural volume of the *American Economic Review*. What is particularly noteworthy is the fact that of the seven pages of content, six and one-half are book reviews, the other half being articles. In other words, it accorded more importance, in so far as the advancement of the field was concerned, to new ideas/concepts than it did to refinements of existing ones. The same was true of the *Journal of Political Economy* whose inaugural number contained 36 book reviews and 24 articles.

Figure 1: American Economic Review 1911 Table of Contents

This changed in the post-WWII period when the focus shifted away from book reviews, over to journal articles exclusively. One could argue that this was the result of two developments, namely the rise of Keynesian macroeconomics and the publication of Paul Samuelson's *Foundations of Economic Analysis*, both of which served to build the field with a pseudo-scientific set of laws. Both became the reference and thus starting point in work for years to come. Interestingly, neither had anything to do with fundamental science, despite the highly mathematical nature of *Foundations of Economic Analysis*.

This shift had the unfortunate effect of stifling progress in what could be referred to as economic fundamentals. Today, consumer theory remains largely unchanged as does the theory of the firm. While economics has witnessed the introduction of new, more sophisticated analytical techniques (dynamic optimization, duality etc.), the core has remained largely unchanged. Few leading journals are prepared to take risks, with the result that little progress has been observed. Add to this the fact that the gatekeepers (i.e., the editors) have a stake in the existing paradigm and you get a form of sclerosis, where journals essentially reproduce existing knowledge.

5.4 A Nobel Prize in Economics

Perhaps the crowning achievement of the economics profession in so far as its scientificity is concerned was the creation in 1968 of a Nobel prize in economic sciences. For one, it *de facto* consecrated economics as a bona fide science, distinct from all other social sciences (moral philosophy), thus dissipating any and all doubts as to its “scientific” status. However, examining in detail the various laureates and their contribution, what stands out is the lack of connection with the other scientific Nobel prizes—that is in physics, chemistry and medicine.

In many instances, prizes given in medicine could well have been given in chemistry or physics, and vice-versa, a testimony of the universal nature of science (fundamental and applied). For example, the 1997 prize in Medicine, awarded to Paul Boyer for his research on ATP could well have been awarded in chemistry or physics for that matter.

Despite the fact that wealth creation is a material processes, like all other material processes in the known universe, no such collegiality exists in economics. Not one of the prizes in economics could have been awarded in the other three scientific categories. One could argue that this is evidence that science does not, *de facto*, matter.

6. What Economics Would Look Like Were the Material Sciences Integrated in a Meaningful Way

Over the course of the past one hundred years, omissions or oversights in neoclassical economics have, for the most part, been rectified with what I shall refer to as addenda—that is, parametric additions to the basic utility and production functions. A good example is the long list of additions to consumer theory, including things like altruism, framing effects, warm glows, reciprocity and identity. In production theory, the list includes management, information, energy, materials, services, highways, etc. In both cases, the essence of the analysis has remained the same. What has changed are the relevant parameters and variables.

The results have been less than convincing. Take for example Ernst Berndt and David Wood's KLEMS production function which added energy, materials and services to the traditional factor inputs of labor and capital. While a step in the right direction, especially with regard to the energy input, it is nonetheless anti-scientific as it imparts no known laws or physical theories of production, making for a situation in which all five are assumed to be physically productive and thus, on an equal footing. Clearly, this is a violation of two hundred years of applied physics/engineering. Furthermore, the upshot is that energy, the only physically-productive input, is relatively unimportant, having an output elasticity of 0.04.

In this section, we provide examples of how science can shed light on a number of puzzles in contemporary economics. We start with the Information Paradox as formulated by Nobel laureate Robert Solow. Accordingly, it maintains that we see computers and IT everywhere but in the productivity statistics, the idea being that despite their prevalence, computers seem not to affect productivity and wealth, as originally thought. Physics, however, tells us that information is not a source of energy and, as such, cannot do work. The only possible effect is on second-law efficiency, specifically more or better information can reduce losses, thus increasing useful work. This follows from basic physics.

Another example is the productivity slowdown. Basic physics tells us that productivity is work (value added) relative to energy input. It therefore stands to reason that if productivity growth has slowed down, then energy growth has also slowed down. In other words, the rate of increase of the energy input has slowed, which is exactly what we observe. The question is then why? Reiner Kummel pointed to the OPEC-engineered energy crises in the 1970s, which coincided exactly with the timing of the productivity slowdown. In recent work, I pointed to the underlying kinetic limits of material processes (Beaudreau 2020). Specifically, increasing machine speeds were the hallmark of the industrial revolutions. However, the age of forever increasing speeds came to an end in the late 1960s, early 1970s, touching off the productivity slowdown. In short, we had reached our kinetic limits.

7. Summary and Conclusions

This paper asked and attempted to answer the question, why has growth theory been a failure? Starting from the premise that wealth creation is a material process and that material processes in general are known to obey the laws of physics, the various theories of production and growth were examined critically, and found to be lacking. In fact, production theory and its derivative, growth theory, were found to violate the laws of physics. We showed, however, that over the course of the past two centuries, there have been exceptions in the form of numerous attempts on the part of both economists and non-economists to provide a consistent approach to understanding growth.

Thus, in conclusion, growth theory has failed, not for lack of good-will and effort. The past forty years have witnessed a veritable *blitzkrieg* of activity on the part of the profession. All, however, has been for naught as the underlying foundations were, put bluntly, wrong. Nothing good could come of it, and, not surprisingly, nothing has. As Paul Krugman put it in his 2013 New York Times Op-Ed column entitled “The New Growth Fizzle”:

My own sense is that New Growth Theory never really had the elements needed to turn it into an intellectual success story; too much of it involved making assumptions about how unmeasurable things affected other unmeasurable things. It took off, briefly, partly because the subject is so important, and people wanted to be able to say something about it; meanwhile, business-cycle macro was then, as it is now, a deeply disputatious area riven by politics, and people were eager to talk about something else. In short, it was an intellectual bubble that eventually deflated of its own accord (Krugman 2013).

In closing, it is worthwhile noting that the steam engine engendered two (at least) scientific fields of inquiry, namely economics and thermodynamics, the latter being the science of heat/steam. Fast forward two hundred years and we find one of the two being mired in controversy and riddled with paradoxes and the other becoming one of the cornerstones of modern science, having spread its tentacles throughout virtually every scientific field. Why the difference? Because one respected

Newtonian physics while the other took it upon itself to reinvent the underlying physics of material processes, making a series of wild and erroneous assumptions, resulting ultimately in the failure that is there for all to see.

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Socialism, Fascism and Neoliberalism: Karl Polanyi's Institutionalism and the Democratic Question in the XXI Century

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Abstract

This paper seeks to reconcile the central ideas that Karl Polanyi presents both in his classic "The Great Transformation" from 1944 as well as in the somewhat lesser-known text, "The Essence of Fascism" from 1935, with the contributions of contemporary scholars who have endeavored to understand the neoliberal movement. According to Polanyi (1935, 1944), the ultimate solution to the crisis of the market society would be either socialism or fascism. Polanyi advocated for the former but was aware that the latter was also a worrying possibility. We argue here that neo-liberalism presents itself as a specific solution alternative to the types established by Polanyi in his works. From a series of contemporary works devoted to understanding neoliberalism, this paper establishes a comparative perspective regarding Polanyi's solutions. With an emphasis on the role of democracy, corporate capitalism, and fictitious commodities, we present the idea that neoliberalism should not be confused with merely the implementation of an autoregulated market. From Polanyi's framework, our study states that Neoliberalism shares relevant features with fascism and constitutes itself as an antidemocratic and violent solution to the crisis of market society.

Keywords: Neoliberalism, Polanyi, Market Order, Fascism, Countermovement

JEL Codes: A13, B25, B52

Introduction

This paper reviews Karl Polanyi's (1886–1964) position on fascism and socialism for possible solutions to the crises arising from the institutionalization of a market society. The neoliberal movement, as it was organized and put into practice throughout the 20th century, is a suitable object for analysis from the perspective of the solutions that Polanyi visualized in his discussion of the crises of the late 19th and early 20th centuries. We seek to reconcile the central ideas that Polanyi presents both in his classic "The Great Transformation" from 1944 as well as in the somewhat lesser-known text, "The Essence of Fascism" from 1935, with the contributions of contemporary scholars who have endeavored to understand the neoliberal movement. This comparison can help us delve into Polanyian solutions to better understand what is new in this specific kind of capitalist society.

Polanyi's historical-anthropological perspective sought to unravel the paths of the institutional transformation that deliberately reframed society around the myth of the self-regulating market. Anthropologically, Polanyi's work shows us how this market-organized society is an aberration when compared to all other possible forms of economic organization. Historically, Polanyi's description presents the state as a central figure in the constitution of the market-organized system. The "catallactic triad," represented by the fictitious commodities land, labor, and money, is presented by the author as a fundamental element not only for the institutionalization of a market society, but also for its possible extinction. For Polanyi, the institutionalization of the fictitious commodities would trigger an inescapable countermovement, a reaction of society against the effects of the commodification of life. Thus, according to Polanyi, the ultimate solution to the crisis of the market society would be either socialism or fascism. Polanyi (1944, 1935) advocated for the former but was aware that the latter was also a worrying possibility.

Almost 90 years after Polanyi (1935) presented his solutions, we find ourselves today in a delicate situation that resulted from the crises of self-denominated socialist countries in the 1980s and the advance of unrestrained and unregulated capitalism over recent decades. For many thinkers, this new market society is the result of reformed liberalism or neoliberalism.

Although the term neoliberalism has historically been used in somewhat different ways in academic literature, scholars have begun to present relevant commonalities in recent years. Following Foucault's (1979) seminal contributions on the neoliberal episteme,¹ in recent years neoliberalism has been treated as a "thought collective,"² that is, as a body of ideas and practices that could be understood by identifying the history of its participants, their discussions, and the dissemination of these ideas at many different levels. This approach has led to the explicit identification of the connections between these participants and the activities of firms, organizations, private

¹ Understanding neoliberalism as an episteme "implies assuming that, more than a mere economic theory, it functions as a matrix of discourse production that traverses different dimensions of culture" (Silva et. al, 2021:77).

² This term was introduced by Philip Mirowski (2013) to identify the set of people, ideas, think tanks and the very process of dissemination of neoliberal ideas constituted primarily from the formation of the Mont Pelerin Society in 1947. Because it is multifaceted, Mirowski (2013) points out that the "Neoliberal Thought Collective" is constituted as a Russian doll, with many layers of representation and action which have strong similarities and connections between each.

individuals, governments, and several groups ideologically organized for other reasons.³ The links between neoliberalism as an episteme, as an intellectual organization, and as the practice of identifiable economic and political agents is the fundamental element on which these analyses necessarily converge.⁴ In this paper we refer to these perspectives through the term “neoliberal movement.”

This updated understanding of the neoliberal movement provides new elements for the reconsideration of Polanyi’s writings (1935, 1944). We argue here that neo-liberalism presents itself as a specific solution alternative to the types established by Polanyi in his works. Neoliberalism is similar to the fascist solution, in the sense that it is perceived as a fundamentally anti-democratic perspective that aims to shield the economic dimension from popular participation. Simultaneously, the neoliberal movement deliberately seeks to encapsulate all social relations in the economic sphere, creating a specific notion of the individual shaped by a mythical vision of corporate behavior. As a result, as Polanyi described in the fascist solution, one would observe the emergence of a state governed by corporations. Finally, the neoliberal solution is innovative because it aims to extend the market society and simultaneously protect the capitalist elites from the backlash of the fading social fabric.

The present article is divided into four parts in addition to this introduction. In the next section, we present Karl Polanyi’s thoughts regarding the emergence of market society as a utopian anomaly that would be impossible to fulfill. Next, we show how Polanyi identifies solutions for the crises in society by pointing democracy as the central element that distinguishes the socialist solution from the fascist one. In the subsequent section, we review contemporary perspectives on neoliberalism, emphasizing its planned and fundamentally antidemocratic nature. Finally, in the last section, we offer reflections on alternatives to neoliberalism, aiming to update the solutions proposed by Polanyi (1944, 1935).

Machinery, Self-Regulating Market, and Market Society

A central aspect often relegated to footnotes in studies of Karl Polanyi’s thought is his holistic perspective on the connections between the institutionalization of the self-regulating market, the expansion of democratic rights, and the emergence of the fascist movement in 20th century Europe. “The Great Transformation” (TGT) reveals this argumentative direction of Polanyi, who devoted the last chapters of the book to the fascist movement. Long before writing TGT, Polanyi had already written texts about the fascist movement, among which we highlight the essay from 1935, “The Essence of Fascism” (TEF). In TEF, Polanyi presents a set of criticisms of fascist philosophers, especially Othmar Spann (1878–1950) but also offers some arguments that are better developed in TGT. The triad of self-regulating market, socialism, and fascism is the central unifying element in these writings. It is not surprising that Polanyi, prior to the writing of TGT, had

³ Here we find works such as those by Slobodian (2018), as well as Djelic and Mousavi’s (2020) description of the constitution of the Atlas Network.

⁴ We will synthesize ideas from works by historians of the neoliberal movement, fundamentally Burgin (2012), Stedman Jones (2012), Slobodian (2018); as well as prominent interpretations such as Mirowski (2013), Dardot and Laval (2009), Brown (2019); and a set of articles recurrently referenced by researchers in the field

planned a book titled “The Fascist Transformation.” Interestingly, this book, though never written, had a synopsis that closely resembled the argumentative line of TGT. (Dale and Desan, 2019:151)

To understand the triad of self-regulating market, socialism, and fascism, we must turn to the fundamental element that organized industrial capitalist society: machinery. According to Polanyi (1947), the Machine Age originated in England during the 18th century and was institutionally consolidated in the first third of the 19th century. The Machine Age is characterized as the historical moment in which the material success experienced by European society was associated with the “willing, indeed the enthusiastic, subordination of man to the needs of the machine” (Polanyi, 1947: 109). Polanyi (1947) suggests that societies that adopted industrialism as a way of life deliberately created certain institutional structures that drove the needs, desires, and aspirations of human beings in ways associated with the needs of the machinery. The needs of the machine depended on an institutional transformation of society in which the dynamics of accumulation and, consequently, the organization of labor and access to land should be available to their full extent for industrial production. In other words, the transformation to industrialism should institutionally guarantee the use of human beings and nature for an ever more extensive and borderless production and commercialization. For Polanyi, the main institution that made it possible to satisfy the needs of the machine was the self-regulating market.

According to Polanyi (1977), the self-regulating market subordinates both the economic and the non-economic institutions to its logic, thereby directly affecting the fate of mankind. Economic institutions are those connected to the transformation of resources into material goods (resources should be understood as labor, land, and money), productive allocation of resources, and distribution of the material goods produced. Noneconomic institutions, such as religion, education, and family, are those that affect the people’s social lives, including moral and ethical aspects, but do not directly affect the process of economic transformation.⁵

For Polanyi (1944, 1977), the “real” (or substantive) economy would originally be the human beings’ transformation of nature through labor to satisfy their needs; in his words, “The substantive meaning stems, in brief, from man’s patent dependence for his livelihood upon nature and his fellows” (Polanyi, 1977: 20). The transformation of nature depends on the interaction between human beings and their environment and on the relationship between human beings (Polanyi, 1977: 31). Thus, Polanyi rejects the idea of the economy as a univocal manifestation of natural human proclivities and presents a conception where environment and culture establish a myriad possible interactions, that is, myriad possible economies.⁶ In his perspective of the economy, the substantive economy would simply be the human economy, that is, “an institutionalized process of interaction which functions to provide material means in society” (Polanyi, 1977:34)

⁵ It is worth noting that radical institutionalist authors, much inspired by the writings of Thorstein Veblen, present a similar argument by claiming that the large corporation would be the dominant institution of the 20th century and that other institutions, such as the family, education, and religion would have been encapsulated by the practices of the dominant one (Dugger, 1992).

⁶ The author is clear in this sense: "On the interactional level, the economy comprises man as a collector, grower, carrier, and maker of useful things, as well as nature as the silent obstructor and furtherer; also, their interpenetration in a sequence of physical, chemical, physiological, psychological, and social events occurring in from the smallest to the largest scale" (Polanyi, 1977:33).

Subordination of the human economy and of the noneconomic institutions to the self-regulated market would not be natural, nor would it have occurred spontaneously. According to Polanyi (1944), the framing of the economy as a market economy was the result of a deliberate process of institutional change that shaped the three constitutive elements that define a market system: the triad composed of the fictitious commodities land, labor, and money. The description of this process, the focus of TGT, is said to have begun with the institutional transformations that took place in England between 1834 and 1846, with the establishment of the following: (i) the Poor Law which removed government protections for poor populations, thereby creating a human army that was available to serve as labor force according to market logic; (ii) the Peel Bank Act, which instituted the gold standard and; (iii) the repeal of the Corn Laws, which removed the protections for local farmer producers “by making the unprotected Continental peasant-farmer subject to whims of the market” (Polanyi, 1947:113).⁷ These institutional innovations conditioned humans, legally and morally, to be concerned with only two basic motivations: the fear of hunger and the love for profit. In formalist economics, this conditioned behavior is defined as “human rationality” and any other motivation not explained by calculation at these two poles would fall into the category of “ideal” or “non-economic” and therefore “non-rational.” Consequently, within the institutional framework of a market society, hunger and profit came to be considered the only “real” and therefore “rational” and “economic” motivations.

Polanyi (1944) emphasizes that the newly instituted motivations led to a new level of understanding about human beings. According to him, the other motivations continue to act in an implicit way as in the human economy. Therefore, to satisfy their need to belong, human beings must accept the newly implemented institutions. The fear of hunger and love for profit would, therefore, be considered explicit motivations that eclipses other economic motivations. In that way, individuals consent to the assimilation of “real man” to “economic man” and, consequently, of “society” to the “economic system.”⁸

Pari passu with the institutionalization of the market-organized society, a type of interpretation about its reality would have emerged: liberalism. For Polanyi (1944) this would be the ideological body that promotes the logic of the market, “a veritable faith in man’s secular salvation through a self-regulating market” (Polanyi, 1944: 141). Liberal, non-economic institutions have used the concept of *laissez-faire*, which can be translated as the idea that exchange relations among human

⁷ Understanding the roles of land and labor in different economies is central to Polanyi’s perspective. It is in the different status of each of these elements that we find the differences in the forms of integration of each economy (reciprocity, centrality or market). In this regard, the author points out that land and labor in tribal societies are organized through kinship ties; in feudal society, through vassalage ties, and in market societies these elements are established as commodities (Polanyi, 1977: 42). This subject will be dealt with in more depth throughout this text.

⁸ For Sahlins (1972), the reduction of human behavior to these two principles causes a curious phenomenon in the comparison between societies guided by market institutions and those organized by distinct forms of integration. Human action in market societies is characterized by an institutionalized insatiability; dissatisfaction is the touchstone of this type of integration. Consequently, we could never say that these would be “societies of affluence”. On the opposite side, indigenous societies lack this behavioral element and satiability becomes a feature of their economy. In this sense, for Sahlins, these would be the true affluent societies.

beings should not suffer from external interference, especially from the state.⁹ In this liberal perspective, these relations always represent a virtuous natural order because they are based on human nature itself. According to liberalism, human beings have a natural tendency to exchange and barter, and therefore, the only way to organize society would be to let human nature manifest itself and to promote state interventions to remove all external influences that would prevent the markets from working freely. In other words, the motivations and the illusion of *laissez-faire* justified the idea that the economic system should represent society as a whole, and therefore, the dynamics of society should be subordinated to the logic of the self-regulating market.¹⁰

The institutionalization of the fictitious commodities (land, labor, and money) would have provided all the necessary elements for the flow of industrial production. These elements were reconfigured in an innovative manner to be accessed according to the market logic. If the “rational” motivations of the human beings are profit and fear of hunger, the workers would be willing to sell their labor for a wage to survive, and the entrepreneurs, motivated by profit, could find in the market, the labor force for their industry, the land to implement their factory production, the raw materials that will be transformed, and the money to buy all these “commodities” to implement their activities, which generate profits in the market by the sale of what was produced. In this sense, all the elements of economic activity would have been institutionally reconfigured, aiming for the integration made possible by the self-regulating market, thus founding a market society.¹¹

Consequently, as Polanyi points out, contrary to what the *laissez-faire* rhetoric proposed, the society integrated by markets was made possible by the intervention of the state. This intervention would happen not only at the time of implementation of the self-regulating market but would happen in perpetuity.

[The] introduction of free markets, far from doing away with the need for control, regulation, and intervention, enormously increased their range. Administrators had to be constantly on the watch to ensure the free working of the system. Thus even those who wished most ardently to free the state from all unnecessary duties, and whose whole philosophy demanded the restriction of state activities, could

⁹ It is worth noting that Polanyi (1944: ch.12) sought to point out the differences between liberalism and *laissez-faire*, which are commonly identified as synonyms. Polanyi warns us that liberalism uses the state without hesitation in order to implement a self-regulating market, while *laissez-faire* rejects the state. Thus, the opposite of interventionism would be *laissez-faire*, but not liberalism.

¹⁰ As we shall see later on, this naturalistic tendency of liberalism will be circumvented by the neoliberal movement.

¹¹ According to the author: “A market economy is an economic system controlled, regulated, and directed by market prices; order in the production and distribution of goods is entrusted to this self-regulating mechanism. An economy of this kind derives from the expectation that human beings behave in such a way as to achieve maximum money gains. It assumes markets in which the supply of goods (including services) available at a definite price will equal the demand at that price. It assumes the presence of money, which functions as purchasing power in the hands of its owners. Production will then be controlled by prices, for the profits of those who direct production will depend upon them; the distribution of the goods also will depend upon prices, for prices form incomes, and it is with the help of these incomes that the goods produced are distributed amongst the members of society. Under these assumptions order in the production and distribution of goods is ensured by prices alone.” (Polanyi, 1944:71-72).

not but entrust the self-same state with the new powers, organs, and instruments required for the establishment of laissez-faire. (Polanyi, 1944: 147).

The arbitrary and planned character of the institutions that constitute market economies end up subordinating human beings and nature itself to a problematic type of social integration. Polanyi insists that the self-regulating market is an exceptional exception in human history. For him, the foundations of this type of sociability would be completely disconnected from the features of the human beings in terms of the ethnographic records, because according to them "Neither the crude egotism, nor the apocryphal propensity to barter, truck and exchange, nor even the tendency to cater to one's self was in evidence" (Polanyi, 1947: 112).

By analyzing the major works of Bronislaw Malinowski and Richard Thurnwald, Polanyi highlights that in so-called primitive societies, the established economic system guaranteed that the individual would participate in the sharing of produced goods (such as food) by simply being part of that community. Fear of hunger was not a motivation for work because such a threat would only affect the individual, most of the time, if the rest of society was facing a similar challenge. Profit motivation through the production and exchange of goods was marginal or nonexistent in these societies. In fact, profit motivation does not hold up according to any ethnographic accounts as pointed out by Polanyi, who states that in traditional societies, the economy is subject to social determinants and not vice versa:

...there is no difference between primitive and civilized society in this regard. Whether we turn to ancient city-state, despotic empire, feudalism, 13th-century urban life, 16th- century mercantile regime, or 18th-century regulationism – invariably the economic system is found to be merged in the social. Incentives spring from a variety of sources, such as custom and tradition, public duty and private commitment, religious observance and political allegiance, judicial obligation and administrative regulation as established by prince, municipality, or guild. Rank and status, compulsion of law and threat of punishment, public praise and private reputation, insure that the individual contributes his share to production. (Polanyi, 1947:112-113).

Contrary to the neoclassical view, which is based on the premise that the only form of economic integration within a society is mercantile exchange, Polanyi (1944, 1977) emphasizes that there are three other forms of integration and their respective institutional models: (i) reciprocity, in which a symmetrical institutional model allows groups or subgroups to establish reciprocal mutual relations with their symmetrically identified peers by performing exchanges that are away from any concept of equivalence¹² (for example, gift exchanges in an established system of installments and counter installments); (ii) redistribution, an institutional model based on centrality, in which some centralizing entity collects, stores, and redistributes resources to the rest of the community

¹² The best-known example of this form of integration is found in the ethnographic records of Malinowski (1922) and in the analysis of Mauss (1950). In this case, the system of gift exchanges among the Trobrianders, known by the term Kula, shows the entanglement of symmetrical relations in a system of iterative debts. According to Malinowski (1922): "The basic principle on which the rules of the transaction are based is the fact that the Kula consists in the giving of a ceremonial gift in exchange for which, after a certain time, an equivalent gift must be received [the] equivalence of the counter-gift is decided by its giver and not by imposition or any kind of coercion" (165).

members according to a traditionally established rule¹³; and (iii) domesticity, an institutional model based on the principle of autarchy that comprises production and storage aimed at satisfying the needs of the person or group itself.¹⁴ Thus, Polanyi (1944, 1977) states that for most societies, mercantile exchange was not the main form of integration, being less important than redistribution, reciprocity, and domesticity. Hence, the integration of communities through markets is a major historical exception in terms of economic organization.¹⁵

As we have pointed out, Polanyi's analysis concludes that the institutionalization of the self-regulating market and the organization of society under a market economy do not eliminate the fact that human beings and society as a whole continue to move, even if intrinsically, under other motivations (such as status, love, belonging, and tradition) than the search for economic profit. Seeking to account for the interaction between the behavioral determinants of the market and the ones that command human socialization outside this sphere, Polanyi (1944) proposed one of his most famous concepts, the level of embeddedness of an economy. The more embedded an economic process is, the more it reflects social practices and is subject to these determinants. Conversely, in a less embedded (more disembedded) economy, the economic determinants are separate or independent from the social ones. Thus, the establishment and expansion of the market economy, in which man and nature are sold as commodities, has shifted the economic process away from the social practices and increased the economy's disembeddedness.¹⁶

We can conclude from Polanyi's (1944, 1977) perspective that the process of uprooting the economies of Western societies did not occur spontaneously but was deliberately calculated and carried out by the state. The process of implementing a market-regulated economy radically transformed Western society's institutions, thereby generating tensions and crises. This has manifested itself in what Polanyi calls the double movement, that is, the process in which the planned movement of market expansion is restrained by a countermovement that limits this expansion. This countermovement seeks to restrict the social consequences of the institutionalization of the fictitious commodities. This can be observed, in the struggle for labor rights, the right to organize unions, agrarian reform policies, social security, and public health, among others. Such movements that generated social conquests were already observed in the

¹³ Here, the example most referred to is the potlatch of the North American Kwakiutl. Before Polanyi, Thorstein Veblen (1889) already mentioned the potlatch to introduce the ostentatious wealth-burning practices of this indigenous group much studied by Franz Boas. The Kwakiutl parties where blankets and whale fat were burned can be understood as a form of redistribution in favor of the honor of the tribal leader and consequently of the tribe that promotes the party, as pointed out by Mauss (1950): "Goods are lost in the potlatch as they are lost in war, in gambling, in fighting. In some cases, it is not even a matter of giving and giving back, but of destroying" (239).

¹⁴ Sahlin (1972) and Clastres (1974) emphasize the autarchic ideal of indigenous groups that, contrary to the myth of the natural barterer, seek to produce everything they need to avoid relying on any kind of barter with outside groups. The groups thus seek to maintain their independence from other groups. In this sense, autarchy is the rule among indigenous groups and barter would be an exception, especially concerning goods not found in the group's environment.

¹⁵ The problem for Polanyi arises when the social theorists assume that all economic activity should be regarded as profit-oriented; in this respect, an economic and fundamentally ethnocentric fallacy emerges that sees all non-Western economies as poorly developed prototypes of a market economy

¹⁶ The role of markets and its embeddedness do not have an on/off character. Block (1991) develops the notions of degrees of marketness and of embeddedness.

second half of the 19th century and the early 20th century, such as in the 1923 Workmen's Compensation Act in England (Polanyi, 1944) and the creation of the first elements of a Welfare State in 1883 by Otto von Bismark in Germany as a response to the struggle for rights of urban workers organized by the then revolutionary Social Democratic Party (Fay, 1950).

Countermovement is an unplanned reaction to the organization of life, necessitated by the planned institutionalization of a self-regulating market. This reaction focuses mainly on attempts to restrict the expansion of the fictitious commodities because, according to Polanyi (1944), subordinating humans and nature to the self-regulating market would be the same as annihilating both.¹⁷ At this point we can already observe how market society puts at risk the very social and natural fabric that sustains the substantive economy. It not only proposes an economy that annihilates the essence of the living world but also endangers the very economic productive system upon which humans are totally dependent. In other words, while the self-regulating market is effective in meeting the needs of the machine, it contradictorily carries the seeds for the destruction and annihilation of the foundations of the productive processes that feed those needs, that is, nature and human beings.

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Freedom, democracy, and fascism

From the above discussion, an inescapable question must be introduced. If the application of the ideal of the self-regulating market in the real world generates countless social tensions and requires constant intervention, both to maintain its functioning and to avoid the self-destruction of society, then who would be interested in the continuation of this problematic dynamic? To answer this question, it is essential to discuss Polanyi's (1935, 1944) views on freedom, democracy, and fascism.

For Polanyi (1944), the freedom of society is conditioned to the extent to which ordinary people can manifest themselves and act in the political sphere, thus enabling access to goods produced by society, security of a decent life, possibilities of cooperation with their peers, creation of public goods, and active participation in the decisions of the community. However, the creation of these freedoms would not interest the wealthy, who enjoy security and liberty in a private manner. In Polanyi's words, the conflict between the classes revolves around the very constitution of freedom, as the wealthy classes "are naturally less anxious to extend freedom in society than those who for lack of income must rest content with a minimum of it." (Polanyi, 1944: 262). Thus, it can be inferred that the capitalist elites and even part of the middle-class support liberalism, where the only freedom that really matters is the free enterprise of their own enterprises. For liberals, what matters is the maintenance and expansion of the market economy, with sufficient regulation that protects the institutionalized fictitious commodities from volatility and prevents the disorganization of the productive process which could lead to the destruction of the profits that feed the freedoms of these privileged classes. Here we have a clear line that separates liberalism, which defends the

¹⁷ Nevertheless, the dangers of fictitious commodities organized under a self-regulating market express the pinnacle of their contradictions when we analyze the least obvious commodity of the triad: money. Polanyi (1944) points out that the risks of money's volatility in an economy that submits it to the rules of the market endangers the productive system itself, even affecting the capitalist's quest for profit. This even encouraged supporters of liberalism, such as David Ricardo, to advocate for the creation of central banks and the management of national monetary systems in order to safeguard the productive sector, a proposal which curiously would represent a kind of countermovement.

freedoms of the wealthy classes through the expansion of the self-regulating market, and freedom, which would be “a prescriptive right extending far beyond the narrow confines of the political sphere into the intimate organization of society itself” (Polanyi, 1944: 265). Thus, Polanyi completely decouples the concept of freedom from the narrow freedom to act in the market. For Polanyi, human beings could create whatever freedoms they wanted; that is, the freedom to act in the market would have no relation to the other freedoms that society decided as fundamental.

The attempt to conflate freedom to act in the market and freedom itself generates conflicts, which are more evident when the market economy is disembedded to the point of subjecting all social dynamics to market principles. It is worth remembering that in the historical period from which Polanyi draws his inspiration, the social crises created by the implementation of the self-regulated market were accompanied by the inability of European nations to respond because of the states had been mobilized to maintain the fictitious commodity currency through the gold standard. Polanyi (1944) points out that this situation accentuated social problems, causing great pressure on local governments. These problems were aggravated by World War I and the subsequent attempt to reestablish the gold standard, which was accompanied by budgetary pressure on the defeated countries that needed to pay war spoils.

For Polanyi (1944), the lack of effectiveness of suffrage mechanisms to solve the problems mentioned above and the inflexibility of liberals regarding the regulation of fictitious commodities and state control began to generate waves of unplanned reactions throughout Europe. Movements of systemic disruption began when the available control mechanisms of European nations did not provide effective answers to the very high level of disembeddedness of the economy. Regarding this situation, Polanyi states that the organization of society under the logic of the self-regulating market would culminate in the overcoming of market society in one of two ways: the conquest of freedom by the population through socialism or the total suppression of freedoms through fascism.

According to Polanyi (1935), socialism and fascism offer different solutions to the crises in the self-regulating market. The major difference between the two revolves around the possibility of extending democratic principles to the economic field. Looking into the sociological foundations of modern democracies, Polanyi points out that Christianity was responsible for raising the individual to the level of being considered the great general value of the Western world and that the development of truly democratic processes would inevitably flow into socialism. The author is clear: “The extension of the democratic principle to economics implies the abolition of the private property of the means of production, and hence the disappearance of a separate autonomous economic sphere: the democratic political sphere becomes the whole of society. This, essentially, is socialism” (Polanyi, 1935: 392). The socialist solution would be in accordance with the democratic principles of modern societies, opening space for the politicization of the economic field and thus, allowing a re-embeddedness of the economy.¹⁸

In contrast to the socialist solution, fascism presents itself as a solution founded on the abolition of the democratic sphere. Thus, fascism would be characterized by “the rejection of the postulate of freedom” (Polanyi, 1944: 268) and relegate the totality of the community to power and coercion.

¹⁸ The socialism that Polanyi had in mind included the need for planning, regulation and control of the economy, which “...achieve freedom not only for a few, but for all (...) Yet we find the path blocked by a moral obstacle (...) The freedom that regulation creates is denounced as unfreedom; the justice, liberty, and welfare it offers are decried as a camouflage of slavery” (Polanyi 1944: 265).

By destroying the political-democratic sphere, only the economy would remain and consequently “capitalism as organized in the different branches of industry becomes the whole of society” (Polanyi 1935: 392). A corporative state then emerges, in which the different branches of industry would have the privilege of being the repositories of almost all executive, legislative, and judicial powers that previously belonged to the democratic state. For Polanyi, fascism is the denial of freedom and the denial of the right to react to all injustices, including those that annihilate the human being and nature. Thus, fascism recognizes the impossibility of coupling democracy with the self-regulating market and positions itself as an anti-democratic solution that protects the interests of the dominant class. Symptomatically and precisely, because it is a solution for the capitalist elites, fascism was not born as a grassroots movement. As Dale and Desan (2019) point out, “the secret of fascisms’ advance was not the numerical strength of its support base but the tacit support it received from capitalists, the judiciary, the army and police, and crucially, the weakening of the labor movement” (155).¹⁹

The socialist and fascist solutions consist of alternative responses to the destruction of the social fabric resulting from the institutionalization of the self-regulating market. The socialist solution reunites society under radical democracy, allowing a re-embeddedness of the economic sphere and enabling the emergence of an economically and politically egalitarian community. The fascist solution is fundamentally anti-democratic, being the reaction of the ruling elites to the possible democratic and popular control over their businesses. The fear of a popular government is the key element that would awaken the “fascist virus” (Cangiani, 2012). Anti-democratic and corporative fascist states explicitly merge economic and political inequalities, deepening the disembeddedness of the society.

Addressing the neoliberal movement

In the previous section, we saw how the institutionalization of the market society can feed a countermovement that, depending on economic and political conditions, would result in either a fascist or a democratic-socialist solution. It is important to note that Polanyi’s historical analysis situates itself in the European society from the 19th to early 20th centuries. Thus, it is necessary to expand and reassess some of Polanyi’s ideas to understand the fundamental socioeconomic phenomena in the transition from the 20th to the 21st century, especially by looking at what has become known as neoliberalism.

The term neoliberalism is usually associated with policies of fiscal austerity, monetary tightening, privatization, market deregulation, trade liberalization, tariff reductions, and financial liberalization, which have dominated the political and economic agendas of Western nations since the 1980s. This perspective, while true and clear, is not sufficient to deal with the broadness of the neoliberal

¹⁹ In chapter 20 of AGT, Polanyi (1944) is clear in pointing out that the fascist situation “[though] usually aiming at a mass following, its potential strength was reckoned not by the numbers of its adherents but by the influence of the persons in high position whose good will the fascist leaders possessed, and whose influence in the community could be counted upon to shelter them from the consequences of an abortive revolt, thus taking the risks out of revolution.” (246).

movement and can generate confusing interpretations about the very nature of neoliberalism.²⁰ Seeking to account for this broadness, in the last decade the study of the neoliberal movement has gained great impetus with radical contributions from historians, anthropologists, sociologists, and economists. These studies have gone beyond the simple consideration of neoliberalism as a political phenomenon and have begun to demonstrate its multifaceted character, conforming at the same time to a governmentality, which refers to the set of knowledge, technologies, and practices that projects a certain type of rationality, freedom, and human subjectivity; the set of ideas that were being built throughout the twentieth century in an international consortium of think-tanks; and the activities of economic and political groups interested in isolating economic processes from the democratic decisions of societies.

The central ideas of Karl Polanyi's institutionalism led us to highlight three elements of the research on the neoliberal phenomenon. It is crucial that we focus on (i) the emphasis by neoliberal proponents on the active participation of the state in planning and implementing a market society; (ii) the understanding of how rationality and subjectivity are redefined from this perspective; and (iii) the authoritarian character of this planned order, since its functioning depends on the degree of isolation of the economic field in relation to the political demands of democratic societies.

The history of the neoliberal movement has been approached in many ways according to the interests of the researchers. Three different dates of its birth have been proposed: the first and most common to analysts is the Walter Lippman Colloquium (WLC) held in Paris in 1938; the second is the initial meeting of the Mont Pèlerin Society (MPS) in 1947; and the third, highlighted less frequently, goes back to the founding of the Industrial Trade Chamber of Lower Austria (ITC) in 1907.²¹ Beyond the discussion of its history, the major theoretical reference for the analysis of neoliberal thought is Michael Foucault's 1979 work, "Birth of Biopolitics." In this book, which consists of the transcript of one of his courses offered at the Collège de France between 1978 and 1979, Foucault shows how the liberal literature of the 20th century positions itself beyond the defense of *laissez-faire* and trusts in the market as a virtuous order, averse to state intervention. In Foucault's view, Austrian economists, German ordoliberalists, and Chicago School economists presented a new understanding of the role of the state in a society organized by markets. In this new liberalism, or neo-liberalism, the state is the central figure because it establishes the legal and institutional framework that would guarantee the implementation and consequent existence of the self-regulating market. In this regard, the self-regulating market is the expression of a new type of governmentality, that is, an institutional structure established by the state to generate a single type of specific freedom: the freedom to act competitively and react to market signals. In this direction, Dardot and Laval (2009), echoing Foucault, point out that neoliberalism "in contrast to Spencer's

²⁰ According to Gago (2015) the problem lies in considering neoliberalism only as a macropolitical rationality, that is, as a set of social and economic policies implemented by the state and not thinking of it as a proliferation of ways of life that "reorganize the notions of freedom, calculation and obedience, projecting a new rationality and collective affectivity" (23). In this aspect, Gago emphasizes that considering neoliberalism only as macropolitics can generate the mistaken understanding that it could end, as if by magic, with a change of government.

²¹ Despite the different birth dates, we find the same founding fathers in all of them: Fundamentally Ludwig von Mises and Friedrich Hayek in the ITC, WLC and MPS and Wilhelm Ropke, Alexander Rustow, Michael Polanyi, Raymond Aron, Bertand Jouvenel and Jacques Rueff in the CWL and SMP. Reference is indicated here to three key works on the history of the neoliberal movement, namely Burgin (2012), Stedman Jones (2012) and Slobodian (2018).

phobia about the state, it recognizes that the market order is not a natural datum, but the artificial product of a political history and process of construction” (69–70). This emphasis of neoliberal thinkers on the role of the state in the implementation of a market society comes close to what Polanyi (1944) verified in the process of constituting the self-regulating market in England in the first half of the 19th century. For Polanyi, the self-regulating market was the result of planning! If the state has always been present in the conduct of market societies, perhaps explicitly admitting the need for its intervention has enabled the neoliberal movement to have a greater capacity to control society’s reaction to the destruction of the social fabric. Foucault (1979) emphasizes the neoliberal thinkers’ reconsideration of human action and the role of the state. The author points out that liberal economists of the 18th and 19th centuries understood *laissez-faire* as the political result of a market economy. The liberal perspective, therefore, understands the beneficial effects of competition as an expression of human nature, and its preservation as the defense of the human being in itself. In neoliberalism, competition would only appear under “some conditions that will have to be carefully and artificially organized. This means that pure competition is not a primitive fact. It can only be the result of a long effort, and in fact pure competition will never be achieved” (Foucault, 1979:158). So we would have a great new feature here, competition could only emerge “if it is produced by an active governmentality” (Foucault, 1979:159). In essence, neoliberalism understands that the market economy is not the antithesis of government intervention; rather, it is the result of an attentive and permanent intervention that artificially creates the competition and the market. The institutionalization of competition as the foundation of this market society, now disconnected from human nature, has enabled the reconfiguration of the human being through neoliberalism.

The neoliberal individual is presented as a new element that extends the liberal conception of human rationality, as founded on the fear of hunger and the love for profit. The neo-liberal perspective extends beyond this and develops a new ontology that eliminates the separation between workers and entrepreneurs. This is where the Chicago School made its greatest contribution. According to Foucault (1979), the idea that the human being is an entrepreneur of himself was a great novelty of the neoliberal movement. This is evidenced from the writings of Gary Becker (1930–2014), who developed the understanding that any human action, including human labor itself, could be broken down into capital and income. In the neoliberal vision, what a worker does is reduced to the performance of a machine in capitalism: a machine that justifies its existence based on the difference between the amount of capital spent and the income it can generate throughout its useful life (wages). In this sense, capital can be understood flexibly, as money, effort, or time. The subject, besides figuring as an uninterrupted process of choice would become, in herself, a repository of these choices, enabling the idea that “it is your choices that define who you are” (Silva et al., 2021:110). Mirowski (2013) refines this reading, showing that this notion of neoliberal person would have as an undeniable characteristic the fragmentation of the individual. Thus, this neoliberal human would not understand herself as:

not just an employee or student, but also simultaneously a product to be sold, a walking advertisement, a manager of her résumé, a biographer of her rationales, and an entrepreneur of her possibilities. She has to somehow manage to be simultaneously subject, object, and spectator. She is perforce not learning about who she really is, but rather, provisionally buying the person she must soon become. She is all at once the business, the raw material, the product, the clientele, and the customer of her own life. She is a jumble of assets to be invested, nurtured, managed, and developed; but equally an offsetting inventory

of liabilities to be pruned, outsourced, shorted, hedged against, and minimized. She is both headline star and enraptured audience of her own performance. (Mirowski, 2013:50)

In short, the neoliberal notion of a person restructures the individual to a competitive ideal in which she must incessantly make decisions that guarantee the salability of her product, even if this product is the person herself.²² An individual “entrepreneur of herself” is certainly the greatest novelty of the neoliberal movement regarding the reconfiguration of human action. The model of the individual firm is now valued as the standard model for the human being, which must always be cultivated.²³ The worker is understood as a subject who must innovate, invest in new knowledge, operate his or her life, and face risks in the competitive labor market.²⁴ The neoliberal movement equated human behavior with the behavior of the firm and through its network of think tanks and large and well-organized media platforms, disseminated this new idea of the human being.²⁵ Unsurprisingly, the Italian philosopher Franco Berardi (2009) has pointed out that neoliberalism has produced “mutation effects on the organism that are more profound than those produced by Nazism, because they do not act on the superficial forms of behavior, but on the biological, cognitive whole, on the chemical composition of society” (Berardi, 2009:87). This transformation of the “biological whole” is not an exaggeration by Berardi as Susan McKinnon (2005) also observes that we are now witnessing the extension of these neoliberal principles of behavior to the biological field through evolutionist psychology. In this respect, all living beings would be investors, genetically programmed to maximize their reproductive rate. The final stance of the neoliberal movement would be not only to reframe the notion of the person as competing “self- businessmen,” but also living beings themselves as beings that carry neoliberal genetics.

As Polanyi (1935) points out, the reaction of capitalist elites to the destruction of the social fabric presents itself as a fascist solution, characterized by the dismissal of the democratic political sphere. A coordinated action among major capitals, states, and interest groups emerged during the 20th century to build an institutional structure, both outside and inside nation-states, aimed at reducing the democratic decision space of contemporary societies. As we will see, democracy is a major problem for neoliberalism.²⁶

²² According to Dardot and Laval (2009:333): "It is about the competent and competitive individual who seeks to maximize his human capital in all fields, who does not seek only to project himself into the future and calculate gains and costs like the old economic man, but who seeks above all to work on himself with a view to continuously transforming, improving and becoming ever more effective."

²³ In this sense Fisher (2009) points out that neoliberalism presents capitalist realism as a political achievement, that is, the idea of a world where "there is no alternative." Such realism would be founded precisely "on imposing a type of reality modeled on the practices and premises coming from the business world" (143).

²⁴ Interestingly, this individual-firm would be an ontologically empty being because, if it makes decisions about itself, as an external field of applications and income generator, then where would it be? For this discussion, see Silva et. al. (2021).

²⁵ On the organization and hierarchy of neoliberal think tanks we point to Djelic and Mousavi (2020).

²⁶ The non-democratic character of neoliberal society leads to the constitution of what Earle, Moran, and Ward-Perkins (2017) call "Econocracy," that is, "A society in which policy goals are defined in terms of their effects on the economy, which is considered to be a system with its own logic that needs experts to manage it." (2017: 7).

The intellectual history of the neoliberal movement has a recurrent concern with the dangers of democracy throughout the 20th century. Polanyi (1935:392) already pointed out this characteristic of the “economists of Mises’ school” for whom “fascism is condoned as a safeguard of Liberal economics.” This anti-democratic tendency has been brought into focus by recent analysts of neoliberalism who form an important bridge to Polanyi’s reflection. Beyond some praise for fascism or the actual participation in Nazi rule,²⁷ at several times throughout the 20th century, key thinkers of the neoliberal movement have positioned themselves to directly engage in activities that included curtailing popular participation in political decisions in several countries. Burgin (2012) and Stedman Jones (2012) show the convergence of the participants in MPS meetings regarding the need to curtail democracies to ensure market order; this is evident in the think tanks’ internal debates on colonial policies in the 1950s. The issue was simple: democracy was a danger to capitalism, so the concern was that the “colonies would quickly enact protectionist and redistributive policies if granted control over their own affairs, as they argued [MPS] that this provides grounds for continued foreign domination of their governments” (Burgin, 2012:119). Latin Americans remember Friedrich Hayek’s²⁸ famous praise of the Augusto Pinochet’s dictatorship in Chile, to whom he (along with Milton Friedman) offered consulting services in the 1970s.²⁹ The same Hayek was a timid critic of apartheid in South Africa, describing it as an “injustice and error,” and he, along with several MPS members, became an ardent fighter against the international embargo on that country. Other members of the MPS were a bit more radical (for example, Wilhelm Röpke openly supported apartheid and William Hutty defended white supremacy in South Africa), which opened doors for them in the New Right circles in the United States (Slobodian, 2018: ch.5).

The neo-liberal movement was concerned with managing popular reaction and curtailing democratic participation. Throughout the 20th century, there was a fundamental transformation in the neoliberal strategy of insulating the economic space beyond its explicit totalitarian tendencies: the reconstruction of international organizations. Quinn Slobodian (2018) presents an argument about these organizations by showing how they were designed after deep dialogue with think tanks and neoliberal ideologues. For this author, since the ITC, neoliberalism has been the central theme in the constitution of the framework of international rules that aims to transfer the decision-making sphere of economic and trade policies to regulatory bodies outside the competence of national states. The history of the GATT and WTO is the main subject of Slobodian’s study, in which he argues that these organizations were shaped to protect the business of international big capital from the dangerous and unpredictable democracies in the newly independent countries of the Global South. Besides these international organizations, the countries’ internal economic policies became regulated by anti-democratic guidelines, such as the constitution of independent Central Banks. For Slobodian, the European Economic Community itself was a neoliberal experiment that reduced the democratic decision-making space in the countries of the bloc, as made clear by the creation of the European Central Bank.

²⁷ Such is the case with Gunter Schmolders, a prominent member of the Mont Pelérin Society.

²⁸ It is worth pointing out that for Hayek democracy was a consequence of the price system, that is, the latter had primacy over the former. This point will not be explored here but we indicate the reading of "Constitution of Liberty" published by Hayek in 1960. This work would become the neoliberal theoretical reference about the connection (or disconnection) between the price system and the democratic order.

²⁹ About the connection between MPS and Augusto Pinochet’s government we recommend Fischer (2009).

In addition to blocking access to political decisions, other possibilities for channeling the countermovement would eventually emerge within the neoliberal world. According to Bugra (2007), in the 1990s there was a change in the perception of the role of the self-regulating market. Contrary to what was observed as predominant in the interventions of counter-movements in the late 19th, early 20th, and post-World War II centuries, where it manifested itself through intervention at the governmental level, the order of the day in contemporary society is founded on the actions of non-state actors through partnerships with state or non-state public authorities. This includes nongovernmental organizations (NGOs), foundations, and bodies that regulate economic activity.³⁰

Socialism, fascism, and neoliberalism

We understand that the neoliberal alternative adds a new element to the Polanyian analytical framework. However, it is necessary to clarify some issues that may emerge from a comparison of this analytical framework with contemporary views inspired by Polanyi's writings. The neoliberal movement can be understood as the first element of the Polanyian pendulum movement. In this regard, neoliberalism can be characterized, like liberalism in the 19th and early 20th centuries, as a movement of institutional transformation for the advancement of the self-regulating market.³¹ The argument defended here is different: neoliberalism is on the opposite pole; it is the very countermovement, radical in nature, which, like fascism and socialism, poses itself as a solution.

Therefore, it is important to emphasize that since its genesis, neoliberalism has been linked to the interests of big capital. In this sense, we follow the ideas of institutionalist thinkers after Polanyi, who emphasized the planned character of modern industrial societies. Such planning would be of a private order and would involve the submission of the state to corporate interests (Galbraith 1967; Munkirs 1985; Dugger 1992). Neoliberalism is not an alternative to this; it is the central element of this planning and the promoter of a corporate state, like the fascist solution.

As shown here, neo-liberalism blocks the possibility of shaping economic decisions through democratic ones. However, unlike the fascist solution, the democratic sphere is not eliminated completely. Thus, decisions that can, in principle, be made by voting are encapsulated by economic factors and affected by corporate interest. The neoliberal solution is characterized by a continuous process of creating new fictitious commodities that are expelled from the field of democratic political decisions. Bugra (2007) points out such commodities; education, health, and security, which under neoliberalism have become encapsulated by the economic factors and are consequently removed from the sphere of popular decision making. Markets established in areas never previously explored are deliberately built by the state, which consequently privatizes control.

³⁰ It is important to note that, in Bugra's words, the "illusion of embeddedness" and the denial of the reality of power (or recognition of the postulate of society) has led to a fragmentation of the counter-movements. This fragmentation ended up strengthening dispersed groups that fight for immediate, specific, and non-structural demands, for example: improvement of life for a specific neighborhood, agendas related to lifestyle (slow food movement), identity agendas, etc (Bugra, 2007). It is important to emphasize that the author does not seek to criticize or minimize specific demands, but to highlight the entropy of social struggles in smaller groups with less power of action or political influence, besides being more questionable in their representation capacity than other more traditional actors, such as unions.

³¹ Examples of this interpretation are abundant in the literature, here we suggest Dale (2010), Bienfeld (2007) and Bugra (2007).

It is not strange, as Mirowski and Nik-Khah (2017) point out that market design (auctions) has become one of the most relevant fields of action for corporate lobbies and economists in recent decades. Despite the differences, the fascist outcome largely resembles the neoliberal solution. In the former, the democratic sphere is immediately extinguished in favor of corporate capitalism; the latter is more parsimonious, imposing a corporate state in increasing doses, creating new fictitious commodities, and controlling the countermovement by blocking the democratic reaction.

Interestingly, as emphasized in the previous section, neoliberalism sought to elaborate on the notion of a corporate and competitive person. This subjectivity is incoherent with the real constitution of corporate society of the neoliberal solution. The self-regulating market becomes a mythical reference in which neoliberal subjectivity orbits but is not related to the planned character of neoliberalism. Here, we have two important layers to study: the neoliberalism for ordinary people and the neoliberalism of corporate elites. Mirowski (2013) points out that neo-liberalism, since its origin as a collective of thought, operates from the doctrine of double truth. The apparent contradiction between totalitarian neoliberalism and the ideas of competitive markets and the neoliberal individual's market freedom is an expression of this double truth resulting from the absorption of Carl Schmidt's ideas into the neoliberal thought collective. The double truth is part of the strategy of the neoliberal solution. Thus, speaking of neoliberal proponents and agitators, Mirowski points out the following:

The neoliberals preach that the market is the unforgiving arbiter of all political action; but they absolve themselves from its rule. They propound libertarian freedoms but practice the most regimented hierarchy in their political organization; they sermonize about spontaneous order, while plotting to take over the state; they catechize prostration of the self before the awesome power of the knowledge conveyed by the market, but issue themselves sweeping dispensations [...] Their version of governmentality elevates the market as a site of truth for everyone but themselves (Mirowski, 2013:50)

For Mirowski (2013), the double truth manifests itself in neoliberalism from an "exoteric" or outward truth (the idea propagated to the general society that the state would be a pernicious element for the welfare of the collective and that self-regulating markets would be the most virtuous and fair way of organizing human societies) and an "esoteric" truth (the inward truth, from the point of view of political actors who seek to defend and expand their businesses through state encapsulation). In the perspective presented here, the neoliberal individual and the belief in his sovereignty represent the exoteric part of the solution, while the active corporate state is its esoteric face. It is exactly at this border between the two truths that we find the anti-democratic element of the neoliberal solution: it manages and protects the interests of the economic elites from the decisions of the people, in terms very similar to the fascist solution. This neoliberal society presents a resistance to any transformation, because its subjective and anti-democratic character becomes an extra challenge to any attempt to promote re-embeddedness of the economic sphere. It is not surprising that for any economic and social problems that arise in these societies, we are directed to some solution offered within the market sphere, favoring the elites themselves to a great extent. From the financial crisis to the climate crisis, the neoliberal solution manages to internalize these problems and return an adequate response to ordinary people and provide a great deal for the economic elites.

Understanding neoliberalism as a solution to the crises of societies organized through markets allows us to reflect on the possibilities of socioeconomic transformation in today's world. Our analytical scheme addresses the apparent contradictions regarding what constitutes the solution. The advance of several governments with anti-democratic characteristics around the world is not surprising. They are often identified as fascists, exposing their explicit association with the privatizing neoliberal ideology and the reduction of social rights. Similarly, the loss of these rights is associated with the corporate vision of life, disseminated by a broad body of media and services aimed at fostering the idea that a glorious future awaits us just around the corner; all we have to do is work hard! Clearly, if the competitive world rewards us with defeat, the neoliberal solution will offer us a wide range of medicinal possibilities to be purchased by the sovereign consumer. Finally, if some confidence remains in a transformation by political means, it is reported that in the neoliberal disembedded world, transformation by political and democratic participation is deliberately controlled and restricted.

Understanding neo-liberalism as a type of solution to the structural difficulties of market societies allows us to renew the Polanyian perspective of the 21st century. Beyond its interpretative advantages regarding the current events in contemporary society, this review reevaluates the pendulum perspective of some analysts. We will no longer discuss the advancement and containment of the self-regulating market. What we have is a set of possibilities revolving around the kind of freedom we are interested in defending. In the spirit of Polanyi and the original institutionalists, perhaps it is time for a solution that firmly promotes the re-embeddedness of the economy, a truly democratic solution.

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Proper Economics? Yannick Slade-Caffarel's Introduction to Social Positioning Theory

Yannick Slade-Caffarel. *Cambridge Social Ontology: An Introduction to Social Positioning Theory*. London: Routledge [Economics As Social Theory series], 2024. Pbk, 104 pages. ISBN 978-0-367-62802-4. £32.47¹

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Whatever one's personal opinion about its standing, the Cambridge Realist Workshop has done a great deal over the years to change the terms of debate regarding philosophy and methodology of economics. Its first official meeting was held in October 1990. In his introduction to *Social Ontology and Modern Economics*, Stephen Pratten reproduces part of the invitation letter circulated at the time (in a less digital world) by Tony Lawson:

All that is presupposed is a commitment to the view that there exists a knowable (under some description) social reality and that economics should primarily address such matters as identifying and understanding real world economic structures, mechanisms, processes and events etc. This commitment, though minimal does entail acknowledging that the nature of economic reality bears upon both the types of theories we can legitimately entertain as well as the methods of theory assessment that can be rationally supported. In philosophical jargon it is a presupposition of the realist programme that questions of ontology are in some sense prior to, and bear upon, questions of epistemology and methodology as well as substantive economic research. (quoted Pratten 2015: 2).

Economics, of course, has changed a great deal over the last thirty-five years or so, but much of this change has been diversification with limited impact on the fundamental problems with how mainstream economics has been conducted since the marginal revolution. A statement like this though provokes argument the terms of which are still not settled. Some will say that specific theory lacks adequacy, others will argue that dominant analytical statistical methods are flawed, still others will argue that policy targets are not focused on what matters or should matter and others still will express some combination of all of these... Debate, furthermore, has turned on many things: schools of thought (this one not that one), markers as dividing lines (mainstream is, is not,

¹ Available: <https://www.routledge.com/Cambridge-Social-Ontology-An-Introduction-to-Social-Positioning-Theory/Slade-Caffarel/p/book/9780367628024>

and should be, heterodox is, is not and should be, etc.), methodology (this frame not that frame) and pluralism (big tents, small tents, your tent, my tent, our tent, no tents)...²

However, throughout, the insight has persisted that how the world “is” (and how we make and remake the world in one way or another as part of how the world “is”) matters. But, somewhat ironically, it has done so, often, as something of an inconvenient fact, not least because it eventually leads to the need to justify the use of models and careers in economics still depend in large part on willingness to go along with this use of models – and some do so more enthusiastically than others and with more of a sense that this use has something to offer.

What can be said today without too much controversy is that economics is something of a mess. It is a glorious mess if one adopts a caricature of Dani Rodrik’s argument (there are many competing models and thus a model for every occasion and this is progress of sorts). It is a ridiculous mess (a triumph of the novelty of the absurd) if one looks to the Freakonomics phenomenon and the ability to data-scrape, extract patterns and infer economic incentives in literally every situation. It is a mess in the process of sorting itself out if one subscribes to the position that the adoption of complex adaptive systems theory (and agent-based modelling etc.), evolutionary game theory, information-theoretic economics and the “new” this and that are works in progress that will eventually and decisively transform the discipline. And it is a smoke and mirrors mess if one comes to the conclusion that the mindset, presuppositions and internalisation of the standard conceptual toolbox and underlying choice of methods remain largely unaffected by the froth of “change”.³

Still, the notion “that economics should primarily address such matters as identifying and understanding real world economic structures, mechanisms, processes and events” retains its enduring appeal and it is good every now and then to be reminded of where this insight might lead. The implication here is that eventually “all roads lead to ontology”, albeit no road terminates at ontology.⁴ This brings us to Yannick Slade-Caffarel’s *Cambridge Social Ontology*.⁵

The book grew out of Slade-Caffarel’s PhD thesis, supervised by Stephen Pratten, one of the main editors of *Cambridge Journal of Economics* and a longtime participant in the Realist Workshop and member of the Cambridge Social Ontology Group (CSOG).⁶ The Realist Workshop has commonly been associated with critical realism, albeit several of the early realist economists were already working on similar ideas and found themselves adopting its language and concepts and the Workshop has never been merely a forum for critical realism.⁷ CSOG, meanwhile, grew out of

² For an indicative range see, Armstrong (2020); Davis and Dolfsma (2015); Fullbrook (2008, 2016); Hodgson (2019); Jo, Chester and D’Ippoliti (2018); Jo and Todorova (2015); Lee and Cronin (2016); Lee and Lavoie (2013); Mearman, Berger, and Guizzo (2019); Stilwell, Primrose, and Thornton (2022).

³ See, for example, Fine and Milonakis (2009); Keen (2021); Rodrik (2015).

⁴ For other and related issues see the interviews Davis and Morgan (2018); Ghosh and Morgan (2022); Keen and Morgan (2021); Nelson and Morgan (2020).

⁵ See also Slade-Caffarel (2019, 2020, 2022a, 2022b).

⁶ Visit: <https://www.csog.econ.cam.ac.uk/>

⁷ For a range of works typically associated with critical realism in economics (with, in some cases, critique) see, for example, Downward (2003); Fleetwood (1999); Fullbrook (2009); Lawson (1997, 2003, 2015); Lawson, Latsis, and Martins (2007); Lewis (2004); Syll (2016, 2023).

discussions between some of the organisers and long-term participants at the Realist Workshop and became a regular meeting from October 2002 held in order to pursue underlying themes with some degree of continuity that the growing diversity and success of the Workshop (as a host for visiting discussants) did not allow. Eventually this led to the development of a novel approach to theorisation of social ontology – and this is Social Positioning Theory (SPT). SPT is an attempt to provide a comprehensive account of the nature of phenomena that depend on us (i.e. are socially constituted). As with any significant innovation in relation to the discipline it raises the question, is this doing economics?

To be clear, the intent in developing SPT is broader than economics alone – the intent, to reiterate, is to lay the basic building blocks of constitution that may inform how economics, but not only economics, is pursued. Perhaps you are already starting to think you can see no value in this – perhaps you're thinking there's enough economics to be getting on with and this is a distraction you can do without. But if one thinks historically, surely the idea that classical mechanics might be a fruitful way to approach the working of an economy seemed odd before its concepts saturated economic discourse – I mention this only to suggest that the unfamiliar can become familiar, can become part of the very architecture of how we think, and not to make a specific point about adequacy. In any case, in what follows I briefly summarise and then comment on Slade-Caffarel's book. This is not difficult to do, the book is only 104 pages long, including index, and if one omits endnotes, it is just 55 pages and this includes the preface. As such, it is about the same length as Steven Lukes' *Power: A Radical View*, a book whose brevity did not prevent it becoming a classic text.⁸

Social Positioning made simple

Over the years there has been no definitive statement of Social Positioning Theory. Instead it has found its way into print (digital existence) in a fairly piecemeal fashion and as a work in progress. Perhaps its clearest recent articulation is to be found in Tony Lawson's *The Nature of Social Reality* and in his recent paper in *Cambridge Journal of Economics*.⁹ Slade-Caffarel, meanwhile, sets himself the task of setting out “the basics” in as simple and systematic a way as possible. In order to achieve this he approaches the theory in a number of steps that clarify the theory's underlying rationale while also breaking the theory down into its conceptual parts. This writing strategy is quite a subtle rhetorical manoeuvre insofar as it looks to close down possible lines of misunderstanding and forestall critique. It also mainly places the theory in dialogue with the reader as a more or less plausible way to theorise how the social world is, and there is very little attempt to situate or justify the theory in regard of wider literature and longstanding debates – hence the brevity of the book (it is tightly focused).¹⁰ This notwithstanding, the first chapter is a short recounting of the

⁸ See Lukes (1974).

⁹ See Lawson (2019; 2022a; 2022b); Lawson and Morgan (2021a, 2021b); Morgan (2020).

¹⁰ To be clear, there are extensive endnotes and these mainly contain long supporting quotes from Lawson's work, but also some discussion of further literature and issues, mainly focused on Roy Bhaskar, John Searle and those who discuss Searle. For wider discussion of work of those associated with CSOG and for literature see, for example, Faulkner, Pratten and Runde (2017); Lawson, C. (2017); Lewis and Runde (2024); Martins (2014, 2022); Mussell (2024); Pratten (2015); Ragkousis (2023, 2024).

establishment of the Realist Workshop and formation of CSOG which also comments on critical realism and historical interchanges with John Searle's Berkeley Social Ontology Group.¹¹

The first thing to note before I briefly reprise the Chapters is that SPT attaches its own specific meanings to some commonly circulating terms and it is important not to confuse the meaning intended and the received meaning one might associate with these terms. The book-proper begins with Chapter Two, titled "Totalities and their components". According to Slade-Caffarel a totality is a system of components i.e. is comprised of parts. There are many totalities and higher level ones are formed from lower level ones. It is crucial at this stage to grasp that while components are parts, they are not, *as components* the same as those parts in isolation or prior to them *becoming* components or prior to the existence of the totality. It is through organizational structure that a totality comes into existence and by definition components can only take on the attributes of components as part of that totality and through its organization. The previous is quite an abstract way to begin but what Slade-Caffarel is doing here is foregrounding the theory in terms of the claim that a failure to keep this insight in mind leads to endless confusions between properties of components *as components* and the properties of whatever it is that eventually becomes, through organization, a component in its organizational position. Put slightly differently, organization matters to both totalities and components. As readers are no doubt aware this kind of argument is typically phrased in terms of emergence (some X has features that are irreducible to the parts from which it arises), but as Slade-Caffarel notes, the concept of emergence merely highlights that there is something new to be described and explained and in SPT it is the features of organization that are the focal point of these tasks. Totalities and their components have "ways of working" that arise in and are achieved through organization.

While the concepts of totalities and components are not specific to social constitution, in Chapter Three titled "Social totalities and the nature of human communities" Slade-Caffarel moves on to specify them for "the social".¹² He identifies the "community" as the most basic social totality. By community, however, he does not mean some amorphous grouping on the basis of, imagined and possibly fictitious, identification or designation. Community is more of a placeholder term intended to cover a wide range of organized phenomena many of which we would not think of as communities in the ordinary language sense. Slade-Caffarel quotes from Lawson, communities are:

those social totalities that include human individuals, more specifically at least two individuals, among the elements relationally organized to form components.

¹¹ He states, "the relationship between the Cambridge group and critical realism has not substantially shifted. Cambridge social ontology has always been a distinct project that has shared concerns and philosophical language with other projects that have come under the banner of critical realism" (Slade-Caffarel 2024: 9). However, "shared" is rather parsimonious and is silent as to whether the history of the realist project would have been significantly different (and with it the thinking of CSOG) had critical realism never come into being and Roy Bhaskar in particular hadn't written a word.

¹² The social refers to those phenomena whose existence depends necessarily on us, but this could allow both for some kinds of phenomena that can in some instances be brought into being without human agency (fire) and for those who once brought into being can continue to exist without any further human agency. Slade-Caffarel states that the latter of these should be considered social but not the former. As such, "core" social refers to those phenomena whose every instance depends necessarily on us for coming into being (presumably concepts as concepts etc. insofar as there is a mental constituent) and for its continuing existence, while the mere social does not require us for its continuing existence (produced artefacts of one kind or another etc.?). This account serves a purpose – it clarifies what is meant – but it seems unsatisfying for the definition to turn on "every instance" – if human fire is not "social" is arson a social phenomenon?

Human communities, so conceived, include families, neighbourhoods, schools, sports teams, corporations, rock bands, research groups, political parties, nations, international organizations and so on. (Lawson 2022: 6-7, quoted in Slade-Caffarel 2024: 44)¹³

These are not necessarily phenomena we are used to thinking of as “totalities” any more than they immediately evoke the word “community” but it is important to understand that the terms are just convenient ways of referring to distinguishable nameable organized phenomena. The terms are not, however, intended to indicate something separate, self-contained, static or complete. Moreover, whatever one thinks of the appropriation of the term community, the idea is that these phenomena share some commonality of constitution, even if this is not immediately obvious. In any case, besides communities there are other social totalities that are either (often) more generalised across other distinguishable “communities”, such as language and communication systems, or are more concrete, such as artefacts, which while material are still organized and social.

Having introduced the idea of organization, totality, social totality and community, and artefact Slade-Caffarel turns in Chapter Four, titled “Social positions and community organising structure”, to constitution. As the title suggests, in the theory “social positions are the organising structure of social totalities” and it is from these the theory gets its name (Slade-Caffarel 2024: 53). A social totality, a community, is an organisation of social positions, constituted through relations between positions and these relations take the form of deontic powers in the form of packets of rights and obligations that belong to positions in relation to other positions.¹⁴ Position A confers the power to (the right to) do X and Position B confers the matching power to (the obligation to) do Y in consideration of Position A and so on in regard of Position C, D, E to the n. Again, the use of terminology – in this case right and obligation – may appear odd at first, since right and obligation are often associated with a sense of circumscribed regulatory, legal or ethical conduct rather than how it is meant here, which is simply as relationally matched powers to do things held in virtue of positions and which achieves things. What powers there are makes sense in terms of the social totality, the multitude of positions and their relations. The complexity of organisation is thereafter an empirical matter, as is how given powers are acquired by a position, what powers exist, how they are exercised, whether they are approved of, and the success and degree of continuity with which they are exercised, as well as the consequences of the complex interaction of positions in social totalities. Schematic though this rendering seems, the social reality that the theory is intended to describe is one in continual process. However, as Slade-Caffarel makes clear, for that reality to exist at all requires not just entities who possess certain individual mental and physical

¹³ This leads to a statement that follows from the definition of the social, given “all social phenomena depend necessarily on us to come into being and that we are all born into communities, all social phenomena must be constituted in a manner that is community relative” (Slade-Caffarel 2024: 45). This claim occupies a position somewhere between logical consequence and tautology.

¹⁴ Note, readers may be familiar with the idea of deontic power from John Searle’s work. For Searle, power is a capacity or ability that manifests in events but need not be exercised or may not be evident (if offset) even when exercised. Deontic power refers to rights and obligation to be or do, and these typically consist of reasons for acting. See, for example, (Searle 2010: 145-147). There is a long history in philosophy regarding whether reasons are causes. See, for example, Donald Davidson’s classic 1963 paper ‘Actions, Reasons and Causes’, contests the position attributed to Ludwig Wittgenstein that reasons cannot be causes. Roy Bhaskar provides an early critical realist argument for reasons as causes in *The Possibility of naturalism*. See, Bhaskar (1979: 102-118).

capacities, but entities able to organize socially, and while this may be obvious it further requires that occupants of positions are willing to trust that relationality will in the ordinary course of things hold (rights *will* in fact be matched by obligations), and that they are prepared to go along with ways of doing things – all of which SPT places some emphasis on.

Finally, in Chapter Five, titled “Social Positioning and the formation of community components” Slade-Caffarel turns to the significance of the occupation of a position by whoever or whatever it is that comes to occupy that position. Recall that in Chapter One he sets out to argue that organization matters to both totalities and components and that components can only take on the attributes of components (become “components”) as part of that totality and through its organization. By extension, in a social totality, a component is not simply whoever or whatever occupies the position but rather by occupying the position becomes a relationally organized part of the social totality. They are by virtue of occupying the position in some sense different than they are when not occupying the position. Furthermore, artefacts can also be positioned and while it doesn’t make sense to talk of rights and obligations of inanimate objects, according to the theory it does make sense to talk of functions allotted to positions occupied by artefacts and to rights and obligations humans exercise in virtue of the positions they occupy in relation to those functions. Importantly though, the functions, rights and obligations belong to the position and not in isolation to whoever or whatever occupies it. So any given artefact or person can find itself or themselves allocated to various positions at various times and in which they are “formed” as a component. If we refer to the human person only, they can find themselves switching from position to position and as they do so they have a state of being, and are acting as a component of, the relevant social totality (community). The ways of acting belong to the positions and their relations with regard to the social totality rather than the individual in isolation.¹⁵

And that’s it. Or at least that is “the basics” as set out by Slade-Caffarel. All of this takes us to the last few pages of the main text, around page 77 and here in a final few pages he provides a couple of brief examples of applications. The issue of gender identity, for example, can be reposed in terms of gender positions, to which children are assigned but within which they may not settle. Since gender positions are social their number is not fixed and nor is assignment, irrespective of whatever else one thinks about determinations of biological sex. Along different lines, SPT can be used to make sense of the modern corporation. Through various innovations a corporation can come to occupy a position previously reserved for human persons, the legal person, and thus acquire the rights and obligations of that position. What both of these examples bring to the fore is that in application the basic building blocks of SPT can be recombined to accommodate to difference and novelty inherent to a changing social reality. More fundamentally, both examples underscore remarks Slade-Caffarel chooses to conclude the book with:

Many of the problems that beset social theory stem, I believe, at least in part, from conflating positioned items with the components to which they give rise and, as such, mistakenly interpreting certain properties or capacities as essential to particular items when, in fact, these properties exist in virtue of relational properties. (Slade-Caffarel 2024: 83).

¹⁵ There is more to this insofar as the argument is made that the various position occupants bottom out in a material human person. Clearly this leads to various lines of dispute regarding what does it mean to talk of a human person who is born into a society and can never not be occupying a position even if it is arguable whether they are a fully realised person when an infant.

Conclusion, SPT and proper economics...

Cambridge Social Ontology is what it says it is, “an introduction”. It provides a quick and concise summary of Social Positioning Theory. You can get through it in an afternoon. It is also mainly easy to read, although Slade-Caffarel adopts in places Tony Lawson’s idiosyncratic sentence construction (think Yoda on Mescaline). The book also uses variations of phrases such as “the conception defended in Cambridge” (e.g. pp. 30, 44 and 44) that inadvertently invoke mass ranks of fully-committed Cambridge citizens willing to shed blood on behalf of SPT (though if this were so it seems likely the current Cambridge economics department houses its own doughty group of mainstream objectors, conscientious or otherwise); that said, “the Cambridge conception” is no more a conceit than the existence of a “Vienna Circle” and is part and parcel of the mythologising that typically surrounds philosophical movements. In any case, easy to read is no mean feat for a work dealing with complicated ideas about the building blocks of social reality. Anyone interested in (or assigned to teach) social theory, economic philosophy or methodology will likely find it worthwhile.

As for the broader issue of the adequacy of SPT in itself and as an aid to making inroads into the mainstream (or displace it) this may be harder for a reader to come to any reasonable conclusion about based on an introductory book. While one might suggest this is compounded by the absence of an explicit “why read this book” thread to Slade-Caffarel’s argument, the book implicitly sits within the broader realist argument that it nods to right at the beginning. Realists argue that all theory presupposes some form of ontology and it makes sense to be explicit about ontology in order to avoid various pitfalls. Why this theory of social ontology (SPT) rather than another, however, cannot be answered merely by arguing in favour of an orientation on, rather than demonstrating more thoroughly descriptive and explanatory adequacy (since this in realist discourse amounts to no more than a general claim that theory ought to adhere to realism).

As I noted in the introduction, however, answering the question “why this theory and not another” does not seem to be the purpose of Slade-Caffarel’s book – use of “defended” notwithstanding. If one were to actually “defend” the theory though, its strongest claim is the one he concludes with, and that is how its use sensitises one to the conflation of attributes of positioned items and features owed to the organized relations of positions (something Lawson has pursued quite a bit with regard to the nature of money).¹⁶ It seems likely though that the first hurdle a reader will find themselves negotiating is the received meaning of many of the terms and I’ve already alluded to this. Along these lines (hurdles), referring to humans as components still carries, accepting that the term is given meaning within the theory, dehumanising connotations that act as an irritant when thinking with this use of language and its concepts – social totalities, communities, positions etc. But, if asked to provide an alternative term for a positioned part of a structured socially relational entity, is there a better one? I expect this will exercise some interested in social economics.¹⁷ And it’s also likely the case that the brevity of Slade-Caffarel’s book will provide opportunity for interested social theorists and social economists etc. to fill in the blanks in terms of comparisons, contrasts

¹⁶ For example, Lawson (2022b).

¹⁷ As well as sociologists and anthropologists. There are great swathes of how we are in the world that seem to overflow the conception of allocated positions. For example, Joy White’s *Terraformed* has a very different emphasis regarding how it feels to be (and to not be) part of communities in her “hyperlocal” research on the experience of black youth in Newham London (White 2020).

and critique from various other perspectives (with this in mind there is also at the moment a special issue of *Cambridge Journal of Economics* in preparation that is doing some of this).¹⁸

Finally, it is worth returning to something else I said in the introduction. While SPT may at first seem an odd way to address economic phenomena this in itself is not a reason to reject it. It's easy to forget how much of the way we currently think about economy started as analogy that required justification. Francis Edgeworth, for example, was very clear that his early attempt to introduce an idea of competitive equilibrium in *Mathematical Physics* began from analogy:

An analogy is suggested between the Principles of Greatest Happiness, Utilitarian or Egoistic, which constitute the first principles of Ethics and Economics, and those Principles of Maximum Energy which are among the highest generalisations of Physics, and in virtue of which mathematical reasoning is applicable to physical phenomena quite as complex as human life. (Edgeworth 1881: v, emphasis added)... To illustrate the economical problem of exchange, the maze of many dealers contracting and competing with each other, **it is possible to imagine a mechanism of many parts where the law of motion**, which particular part moves off with which, is not precisely given—with symbols, arbitrary functions, representing not merely *not numerical* knowledge but ignorance- where, though the mode of motion towards equilibrium is indeterminate, the position of equilibrium is mathematically determined. (Edgeworth 1881: 4, emphasis added).¹⁹

It surely took some considerable effort to internalise this way of thinking from laws of motion to ways of transacting in pursuit of exchange. Convincing oneself that this was science likely did not come easy to many an early reader – a transition from improper to proper “economics” – a matter that history of economic thought has had much to say about in addition to critique of consequences.²⁰ The indirect point I am making here is why not give SPT an outing and see how it sits. It could be an afternoon well spent.

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¹⁸ For example, Lewis and Runde (2024).

¹⁹ See also his discussion of the conditions of normal and perfect competition and the four required conditions (unrestricted recontract, unrestricted contract, recontract without reference to third party constraint, contract independent of third-party interference), Edgeworth (1881: 17-18).

²⁰ Most notably Mirowski (1989). For others see Morgan (2023, 2024).

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