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Economics and Nature: A Long-Neglected Combination

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Economics and Nature: A Long-Neglected Combination

Abstract

The intersection of Economics and Nature has long been overlooked, but recent events have shed new light on their interconnectedness. This paper explores this relationship, focusing on the impact of economic cycles and the role of GDP as a measure of economic success. The paper highlights the historically dominant role of GDP, tracing its origins from Simon Kuznets' report in the 1930s to the present. It considers the rise of quantitative growth as a paradigm and its influence on economic policy, including the neo-liberal perspective that prioritises private market initiative. The paper concludes by exploring the potential for change in the aftermath of the syndemic crisis, and argues for a move away from GDP-centred measurements towards indicators that are fully researched and ready to use.

JEL-Codes: I310, O100, D000.

Keywords: critical deceleration theory, nature, GDP, beyond-GDP indicators.

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1. Introduction

In a recent study published in *Nature Scientific Reports*, climate scientist Craig Rye and economist Tim Jackson (2020) use the critical deceleration theory, known in physics, to study the oscillations of economic cycles over hundreds of years. According to this theory, a system displaced from a point of equilibrium will return to it more quickly the stronger the pulling forces. The fluctuations around equilibrium increase until the system becomes unstable when the internal pulling forces are weakened. The latter case is analogous to the conditions under which the pandemic crisis of 2020 unfolded. The stabilising forces of many mature economies have been progressively weakened over the last decades ("secular stagnation"), and the Covid-19 shock has all the characteristics to leave them deeply marked and highly unstable. A highly unstable system, on the other hand, can more easily be led to a different equilibrium than the one before, and this opens up a window of opportunity that was unimaginable until the early 2020s. Since the first months of the pandemic, certain lines of research, hitherto essentially unheard of, have gained greater voice and attention, as the essential forces that sustain and stabilise an economic system are undeniably revealed. The crucial and irreplaceable role of the public sector has become clear, as has the damage caused by spending cuts in its most strategic areas, the weight of accumulated technological backwardness and the digital divide. And, above and beyond all this, how important it would have been to be better equipped to deal with the interdependence of the economic system with the natural system. It may seem trivial, but in the face of such a gigantic natural brake on the frenetic and global rhythm of economic relations, one wonders how much awareness there was of the dependence of our economies on nature and, consequently, how active economic research was on this front.

When the financial crisis broke out in 2007-2008, Queen Elizabeth II of England asked economists at the London School of Economics: "But why did no one see this economic crisis coming? At the time, the few answers were evasive, timid and uncertain. A debate ensued among those who had long denounced the dangers of the system, but this had no significant impact on subsequent economic policy, which would have been beneficial. The response to this shock was limited to a few sessions added to international conferences and then returned to a largely confined debate between 'heterodox' academics. If, in the wake of the crisis that exploded in 2020, we were asked where economists were in thinking about the relationship between the economy and nature, we should have answered: 'elsewhere'. In a study conducted just before 2020, Andrew Oswald and Nicholas Stern (2019), two influential British economists, reported the data: economics research related to climate change issues has seen zero contributions in the world's most cited economics journal, and since 2000, eleven articles out of forty-seven thousand have been published in the ten journals considered most prestigious.

Yet the impact of economic activity on the balance of Nature is a fact that has been known and evident for some time. With fragmented value chains scattered around the world, agriculture largely organised around very long supply chains and a goods transport system with a very high environmental impact, we have arrived at a pandemic, in addition to the well-known damage caused by the use of fossil fuels. Tourism, which has brought increasing numbers of people, is only marginally oriented towards landscape heritage and protected areas. Many of the epidemics and pandemics of the last century have developed as a result of the species jump favoured by the way animals are used, hunted and traded for food, furs and shows (Felicetti 2020), and by their use in intensive farming where they are kept

alive with antibiotics.² The production of animal feed is one of the causes of deforestation. The list goes on and on. These are mostly known facts, mostly related to legal activities, and always allowed to exist because they have a monetary equivalent, which makes up the Gross Domestic Product (GDP) of the country in which they take place.

The importance of GDP as a measure of the health of an economy has a less well-known history, one that parallels and is interestingly intertwined with the history of the economic paradigm that dominated the 20th century and from which we are still far from freeing ourselves. In what follows, we will briefly trace the history of both, in the belief that only by knowing their history can we hope to interrupt the long-standing anachronistic belief that GDP growth, driven by private initiative as free as possible from public interference, guarantees prosperity and can be pursued without qualifying its effects on society and the environment.

2. The climb of GDP

At the inauguration of the Roosevelt presidency in the United States, the Senate commissioned a study to measure the performance of the American economy. Simon Kuznets³ published a report in 1934 that fulfilled this requirement. The requested study was instrumental in providing the information needed to manage the aggregate economy and prevent another depression like that of 1929. In the same report that gave birth to the synthetic index of the national output that would become GDP many years later, Kuznets warned that it was a partial measure of a country's true economic activity and warned of the dangers of unwittingly exploiting its limitations. In the introduction to his report to the US Congress, Kuznets made it clear that the measure of national income it defined only recorded income from market activities, valued at market prices and therefore affected by the distribution of income, and that it could not be used to infer the well-being of society without important qualifications:

"[...] we find all too frequently such inferences as that a 30 per cent fall in national income (in "constant" dollars) means a 30 per cent fall in the total productivity of the nation and a corresponding fall in its welfare. Or that a nation whose total income is twice the national income of another country is twice as "well off", can make twice as many payments abroad, or can carry twice as much debt. Such statements, of course, can only be true if they are qualified by a host of 'ifs'". (Kuznets 1934, 7).

The analytical framework for translating information about economic developments into policy action developed in parallel in the United Kingdom with the work of John Maynard Keynes, who was interested in an accounting system that would allow government intervention to be counter-cyclical and expansionary in line with the performance of the economic system. Keynes's theories also influenced further developments of the accounting system by Richard Stone⁴ and James Meade, but the scope and power gradually acquired by the Gross National Product measure developed in the

² The EMA and AISVAC reports the still very high utilization figures.

³ Simon Kuznets won the Nobel Prize in Economics in 1971 "for his empirically based interpretation of economic growth, which led to a new and deeper analysis of social and economic structure and its development process."

⁴ Richard Stone received the Nobel Prize in Economics in 1984 for his contributions to the development of the national accounting system.

1930s and 1940s comes after and is closely linked to US political and economic history. The work of the Organisation for European Economic Cooperation, whose priority was soon to be the management of the Marshall Plan, was instrumental in incorporating GDP into the various European governance systems, and the creation of the International Monetary Fund and the International Bank for Reconstruction and Development (later the World Bank), which followed the Bretton Woods agreements of 1944, made the same measure a key parameter for international policy governance (Costanza et al. 2014; Schmelzer 2016; Fioramonti 2016). After the end of the Cold War, in parallel with the adoption of the same accounting system in China and the former Soviet Union, Gross National Product was completely replaced by Gross Domestic Product and incorporated into an increasing number of international agreements; in Europe, from the Maastricht agreements of 1992 to the Fiscal Compact of 2012. In these Treaties, which link the public management of traditional fiscal levers to the evolution of GDP, the role of GDP has been reversed compared to its use by Keynes. In short, given the monetary union and the absence of a fiscal union, the pacts stipulate that public spending, and hence economic stimulus, can only expand if GDP expands. The inauspicious effects of so-called 'expansionary austerity' have been demonstrated by the unsuccessful macroeconomic policies adopted in response to the 2007-2008 crisis (Daniel 2015), and even more so by the syndemic effects triggered by the 2020 pandemic (Horton 2020).

The progressive and growing power entrusted to a measure focused on the quantitative growth of production and consumption, and indifferent by definition to the environmental damage it accumulated, was soon the subject of critical reactions and reflections. From Robert Kennedy's oft-quoted speech at the University of Kansas in 1968 to the content of the 1987 Brundtland Report, to the formulation of the 2030 Agenda, many speeches have been devoted to challenging the dominance of GDP as the sole and appropriate measure of the success of an economic system (Costanza et al. 2009). But their voice has long remained an unwelcome background - often dismissed as unfounded or defeatist - to the loud and triumphant sound of neoliberal thinking, strongly based on the neoclassical models developed over the past 150 years and the 'end of history' evoked in the 1990s.

3. The paradigm of quantitative growth

In the preface to the publication of the report of the Stiglitz-Sen-Fitoussi Commission⁵, Nicolas Sarkozy (2010, IX) wrote: *"I am firmly convinced of one thing: we will not change our behaviour unless we change the way we measure our economic performance. If we don't want our future and that of our children and grandchildren to be littered with financial, economic, social and environmental catastrophes, which are ultimately all human, we must change the way we live, consume and produce. We must change the criteria governing our social organisations and public policies. [...] The time has come: it's now or never"*. During the French Presidency of the European Union in 2008, the Commission was set up to identify and overcome the limitations of GDP as an indicator of economic performance and social progress. The Commission's report highlighted the gap that had developed between the state of the economy and society and the indicators used to represent them, or, in other words, the growing confusion between the representation of reality provided by the indicators used and reality itself.

⁵ Commission on the Measurement of Economic Performance and Social Progress (CMPEPS).

The supremacy that GDP has acquired over the decades is certainly linked to its usefulness as an easily communicable and internationally valid measure, but the defence and conviction that it is a sufficient measure to determine the success of an economic system has at least two origins, one in economic history and the other in the history of economic thought.

Although expressed here in a very simplified way, the first is linked to the conditions in which economies found themselves after the Second World War. At a time of necessary reconstruction, when families were moving from the countryside to the cities and had the income to buy the first electrical appliances and, in general, the goods that were necessary and available at the time, quantitative growth was in fact what was needed to allow everyone to live in better conditions, and it was also the effective signal for recording the countries that progressed most rapidly in this direction. The second is part of the whole history of economic thought and is particularly linked to the school of thought that evolved from the neoclassical approach to political economy to neoliberalism, its political and politico-economic variant. More than a decade after the work of the Sen-Stiglitz-Fitoussi Commission, and although research along these lines has continued to develop, the urgency for a paradigm shift felt after the 2008 crisis has not shown clear signs of continuing to live and produce the changes that were considered necessary at the time. To overcome the paradigm of quantitative growth as the main objective for the proper functioning of economic systems, it is still necessary to refer to economic theory, which has been joined by the fortune of GDP.

Since the second half of the 19th century, economic research has been characterised by the programmatic intention from the outset to transform the study of economics into a rigorously quantitative science whose results would have a rigour comparable to that of the natural sciences (Ingrao, Israel 2006, 33). Thanks to an increasingly refined use of mathematical analysis, the dominant object of study has been General Economic Equilibrium (GGE), i.e. the search for the formal conditions that guarantee the equilibrium of all the markets in an economic system. The notion of equilibrium can be thought of as a state of general order in which an economic system, driven by independent and potentially conflicting actions, can converge.

The interest in the dynamics that lead a social system, in which different individual actions and goals are confronted with each other, towards order and prosperity has ancient origins, but it is useful here to recall two contributions that address the question of the possible coherence between individual selfishness and an outcome of collective interest in the context of an industrial economy.

The first, in chronological order, is Bernard de Mandeville's 'Fable of the Bees' of 1705 (1995), which describes a society in which 'every part was full of vice, but all was paradise' for wealth and opulence. In early eighteenth-century London, the work circulated widely and provoked a wide-ranging and long-lasting debate.⁶ It is conceivable that the echoes of this debate reached Adam Smith's most famous work, *The Wealth of Nations* of 1776 (2011), which is still invoked in political economy texts and teachings for the notion of the 'invisible hand', a spontaneous coordination mechanism associated with the functioning of a trading system. The idea of the invisible hand as a representation of the self-regulating capacity of a free market system takes on an increasingly precise form in the development of EEG theory. In it, the *deus ex machina* becomes the price system, the only information signal necessary and capable of guiding a myriad of perfectly rational subjects, acting solely in their self-

⁶ The subtitle of the work is "Private Vices and Public Virtues." Written in a polemical and satirical spirit with the most corrupt customs of the time and evolved in several subsequent editions, the fable attracted much attention, so much so that it was reproduced in unauthorized copies and sold on the streets at a lower price than the official press (Trampus 2008, ch. VI).

interest, towards equilibrium.⁷ EEG theory developed between the second half of the 19th century and most of the 20th century, with many contributions from excellent authors.⁸ Over time, the theory has been developed partly as a purely theoretical and analytical exercise, where it reaches important and interesting peaks of refinement in itself. In part, the theory conveys and generates reflections on the relative merits of market economy and planning (Ingrao, Israel 2006, 240-46). Among the many results, the most relevant for economic policy is the fundamental theorems of welfare economics, which were refined in the 1950s and 1960s with Kenneth Arrow and Gerard Debreu's (1954) work. The theorems set out the conditions that must be met for a market system to reach an equilibrium that is desirable for all and cannot be further improved.⁹ Desirability is related to the welfare generated by the trading system, which is maximised if the volume of trade reaches the maximum possible level given the supply and demand conditions. Moreover, if markets are in equilibrium, any external interference, including any economic policy manoeuvre, introduces an efficiency loss, the extent of which depends on the contraction of the volume of trade generated by the disturbance that external interventions induce on the price system. The result is very technical, but it gives rise to very different possible readings and directions for economic policy.

The first possible reading is that, given the complexity and abstractness of the conditions that guarantee the efficiency of the equilibrium of a system of competitive markets, an economic system cannot be based on the free market alone and that, consequently, state intervention must be recognised as having a complementary and important role. The second reading, on the other hand, suggests that the system of conditions that guarantee the outcome can be considered as the set of objectives to be assigned to state intervention, whose sole role is to enable the free market to achieve an efficient equilibrium. Two interpretations can still be discerned in current debates, the second of which is linked to the conviction that quantitative growth is the mother of all benefits and that the decisive contribution to a country's growth can only come from the initiative and functioning of private markets, free from the influence of public policies.

The origins of this interpretation go back to the work of a think tank founded in 1947 in the Swiss village of Mont Pèlerin. The Mont Pèlerin Society was made up of a group of self-proclaimed 'neo-liberal' politicians and intellectuals, including Friedrich von Hayek and Milton Friedman.¹⁰ The Society was founded in opposition to the prevailing ideas of the time, which advocated using fiscal levers such as high taxes and a strong social safety net to stimulate growth. Seeing these policies as a threat to freedom and a possible route to new totalitarianism, neoliberals set out to halt the decline

⁷ The belief in the invisible hand and the attribution of its organising power to markets is more attributable to twentieth-century economists than to Smith himself. Many studies have shown the extent to which the parallel between a market system and the invisible hand attributed to Adam Smith is either a careless reading, or a reading more interested in legitimising the free action of market forces than in representing the author's thought. For a fine reconstruction of the distortion of Adam Smith's thought by later authors, see Alessandro Roncaglia (2005).

⁸ EEG theory boasts contributions from Léon Walras (1870), Francis Y. Edgeworth (1881), Vilfredo Pareto (1906/9), and many others up to Abram Bergson and Paul Samuelson (1947), Kenneth Arrow and Gérard Debreu (1951).

⁹ The result is subject to an important set of assumptions and axioms, and the quality of the result, "not further improvable", refers to the Paretian Optimum, which is the definition of efficiency that remains valid throughout economic theory. A detailed discussion of the set of axioms supporting the result can be found in: Mas-Colell, Whinston, Green (1995). Bruna Ingrao and Giorgio Israel (1995) offer a comprehensive reconstruction of the links between the development of EEG theory and the history of science.

¹⁰ Both economists, they were awarded the Nobel Prize in economics in 1974 and 1976, respectively.

of faith in private property and the competitive market.¹¹ In terms of market-state relations, their approach to economic policy fits well with the second of the two possible readings of the welfare theorems. Their ideas came to full fruition in the 1970s,¹² significantly shaped US and UK economic policy in the 1980s and, although tempered by the long European social democratic tradition, also deeply contaminated European treaties and policies after the fall of the Berlin Wall.

In the following decades, some of the ideas underlying neoliberal thinking remained deeply rooted in the thinking of many economists and most technocrats (Barca, Giovannini 2020, 6-13): the myth of the greater efficiency potential of a free market system over the possibilities of public management of the economy, and the pursuit of continuous GDP growth to promote welfare.

4. A crisis that should not be wasted

What has been summarised above is the consolidated heritage of so-called heterodox theoretical economics, within which positions remain anchored in the idea that quantitative growth is an objective to be pursued. In terms of economic policy recommendations, the difference with the thinking closer to the neoclassical tradition lies in the disagreement over the necessary levers and the relative roles of the state and the market in securing growth. Neither theoretical approach includes a focus on protecting natural capital or accounting for the value of ecosystem services (Costanza, 2020). To find evidence for this, one must look to research measures of well-being that can go 'beyond GDP',¹³ a literature that is no longer so recent but still struggles to find a place in economics (Oswald, Stern 2019). However, if economic systems are organised to produce welfare, but we insist on judging their success based on an indicator that does not measure it, we are faced with a paradox that should concern economists in the first place.

Whether and to what extent the Covid-19 SARS pandemic was directly caused by human activity may still be a matter of research (Beyer et al. 2021),¹⁴ but the damage that growth-oriented economic activity has inflicted on the world's ecosystems is clear from an objective examination of reality alone (Leach et al. 2021). To break the vicious circle of pursuing growth without taking into account the destruction of nature, it is necessary to change the goals and thus the indicators that track them. There is a vast literature proposing to correct GDP or to replace it with sets of indicators.¹⁵ The latter can

¹¹The Mont Pelerin Society, Statement of Objectives, 1947. <https://www.montpelerin.org/statement-of-aims/>

¹²A group of Chilean economists trained in Chicago in the years before the coup conducted the first neoliberal-inspired economic policy experiment in Pinochet's Chile (Harvey 2007).

¹³ Research on indicators other than GDP began in the second half of the 1960s, initially with the intention of assessing social or socio-economic outcomes. After the Rio Conference in 1992, research intensified, adding environmental and social dimensions to the relative assessment of different economic systems. The first World Forum on the Measurement of Well-being, organised in 2004 by Prof. Enrico Giovannini, then Director of the OECD Statistics Directorate, helped to unite and coordinate the study of measures that can go "beyond GDP".

¹⁴ Scientists, whose awareness of a possible pandemic has been growing for years, are investigating the ecological and systemic causes of the pandemic and their relationship to the use of natural resources for economic purposes.

¹⁵ There are composite indicators that correct for GDP, such as the Genuine Progress Indicator (GPI), which adds the value of welfare-enhancing activities not included in GDP, such as volunteering, household work or services to durable goods, and subtracts the value of the damage caused by other activities, such as pollution. Indicator sets follow a different logic from composite indicators: to maintain control over individual domains, the measures of different indicators are kept separate and not aggregated. The earliest is the Better Life Index,

measure all the dimensions relevant to a country's well-being in a way that is best suited to the complexity of the system and is useful for providing a measure of the goals of the 2030 Agenda. Growth is not good in itself, it has to be qualified. It increases well-being if it reduces the inequalities that cause economic and social harm (Pickett, Wilkinson 2010). It increases welfare if it focuses on sectors, production methods and consumption patterns that stop environmental degradation, a goal that can only be promoted by public spending and planning policies.

Milton Friedman wrote (2002, XIV). "Only a crisis - real or perceived - produces real change. When that crisis occurs, the actions that are taken depend on the ideas that circulate". The pandemic crisis could be the opportunity to bring about the change that was already urgently needed after the 2008 crisis, as long as we take note of the backlog and adapt the ideas in circulation to the real world, considered in its entirety.

created by the Stiglitz-Sen-Fitoussi Commission in 2009. In Italy, a joint initiative of ISTAT and CNEL has developed the BES (Benessere Equo e Sostenibile/ Fair and Sustainable Welfare), an indicator with 12 domains and 152 indicators.

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