BARBARA ANNICCHIARICO[*], ROBERTO BARATTA[**], TOMMASO DI MARCELLO[***], SALVATORE MORELLI[****], CHARLES SABEL[*****]

FIXING THE CLIMATE WITH EXPERIMENTALIST GOVERNANCE? HOW?

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[*] Full Professor of Public Economics, Roma Tre University.

[**] Full Professor of European Union Law, Roma Tre University.

[***] Associate Professor of Commercial Law, Roma Tre University.

[****] Associate Professor of Public Economics, Roma Tre University.

[*****] Maurice T. Moore Professor of Law, Columbia Law School.

1. Introduction

Official climate data tell us with a very low degree of uncertainty that global temperatures for the months of September and October 2023 represent the highest anomaly ever recorded. The challenge before us, of large and timely phasing out of greenhouse gas emissions is enormous in scale and complexity. There appear to be no ready and fast solutions but there is a need for profound technological changes in several different production sectors. Finally, these solutions must be adopted quickly and promptly to reduce the magnitude of irreversible changes to the planet's climate. The good news, the most reputable studies tell us, is that the technical knowledge available to us allows us to have real solutions.

In the latest International Energy Agency report, World Energy Outlook 2023 released just a few days ago, institute director Fatih Birol writes in the preface that '[t]oday, solar power, wind power, efficiency and electric cars are all well established and readily available. We have at our disposal the lasting solutions to today's energy dilemmas.' We can thus truly aspire to have the opportunity to be the first generation to have transformed their lifestyles into fully sustainable modes.

On October 26, 2023, the Law department of Roma Tre University hosted a special event within the 'Inequality in Rome Seminar Series', hosting Prof. Charles Sabel of Columbia University School of Law to discuss his new volume *Fixing the Climate: Strategies for an Uncertain World*, co-authored with Prof. David Victor of the University of California San Diego. This special event was organized in collaboration with the *Forum Disuguaglianze and Diversità*, an Italian organization that brings together researchers and civil society members to design and advocate for public policies that aim at reducing the levels of inequality in the country.

Sabel and Victor's book proposes an innovative method that can work in the context of radical and pervasive uncertainty about the solutions to be undertaken to make the energy and ecological transition more affordable. *How?* The core of the book lies in the model of global governance of climate change that it promotes. The overall premise is clear – no response to climate change will succeed without international cooperation (p. 153). The problem is what type of cooperation international law should embrace. The answer is, according to the authors, 'experimentalist governance'

(hereinafter EG), a system that goes beyond the Paris Agreement (2015). They argue that such Agreement has failed to achieve its goals. The book instead puts forward the model of governance endorsed by the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer – a history of success, as the Authors rightly maintain (see pp. 4 to 7 and Ch 2).

The book forcefully suggests that we need to reward those who innovate and destabilize the status quo and penalize those who do not want to change through experimental and concrete processes of collaboration between business, between State, business, and citizens, and between States. The states should set ambitious standards and broad goals that are able to incentivize economic agents to act. Moreover, those who set standards interact with those who must solve problems on the ground and implement solutions, following an iterative process of mutual correction of the roadmap and concrete goals to achieve. Such solutions aim at complementing classical market-based approaches. Indeed, the experimentalist governance approach operates in a decentralized manner, coordinating myriads of individuals, institutions, and economic agents just as happens in markets but not by means of prices, but by setting standards that are continually revised by accumulating new information, if necessary, through deliberative and discussion processes. A form of deliberation that uses doubt, disagreement, and a peer review process to advance the technological frontier even in an environment of profound uncertainty.

In this article, we propose the main issues and questions that were raised during the seminar by the panelists Prof. Barbara Annicchiarico, Prof. Roberto Baratta, Prof. Tommaso di Marcello, as well as from the coordinator Prof. Salvatore Morelli.[1] Prof. Charles Sabel provides his responses in turn.

2. Persuasion of stakeholders or punishment and sanction?

The wording 'experimentalist governance' (EG) appears early in the book (p. 3). However, its theoretical description is set out in Ch 3, while other chapters further

[1] We also acknowledge the participation of Dott. Francesco Ferrante as an official panelist of the event.

develop key issues of EG. I prefer to describe EG by referring to its two main characteristics, instead of giving a general definition, which however is provided for in the book – it is in short, an 'organizational structure' for international law-making (see p. 51 ff.). Moreover, the same mechanisms have sometimes been used at a domestic level (e.g. in California).

First, EG is a dynamic and resilient mechanism designed for governing situations of uncertainty. It involves a problem-solving approach that does not coincide with 'hard law' rules (see p. 67). Periodic adjustments and contextualization are key to finding wide consensus on updated solutions (see Ch 5). A supplementary, yet essential component of this 'constantly moving' model of governance is 'guidance' (p. 62), ie rules of soft law meant to set the pace towards virtuous behaviors of public and private actors. EG is also based on 'regular monitoring' of progress towards achieving environmental goals – a system of scrutiny that goes together with a set of incentives for adopting 'good' behaviors and penalties for tackling inconsistencies (see eg p. 56, and 66 ff.).

Second, EG is inherently cooperative, as it involves a wide range of actors, such as states and non-state entities, national regulators, industry, academia (scientists, engineers), civil society, and NGOs, all of them in search of sustainable solutions. This law-making 'process' is grounded on technological innovation (see Ch 4), as stakeholders are demanded to push towards innovative solutions. Incidentally, I would argue that the EU legal system is well-equipped and flexible enough to embrace EG for addressing environmental issues – a topic I cannot dwell on here.

Therefore, EG is neither a top-down nor a bottom-up system of rules. It is both (see, p. 10). It is not a model of enduring and generally applicable regulation. It is rather a mechanism for creating and revising rules until their content, even in prescriptive terms, is defined and climate change will be fixed. Hopefully soon.

In short, how much is EG a 'recipe' that fits only a social context where a 'group' of actors creates rules and is accountable for them? Is EG based on a concept of international law that presupposes a certain degree of legal indeterminacy, particularly on the consensus or moral persuasion of the global community?

Answer: Very generally speaking, experimentalism is suited to conditions of uncertainty, when action is urgent (or, conversely, inaction is unacceptable), but no

single party is convinced of the viability of its own reflexive response, let alone that of others. Under such conditions, some actors will find it attractive to collaborate in searching for solutions. They can do this by fixing interim goals and using periodic, joint review of progress towards them to clarify their aims, assess the feasibility of the project and test the capabilities and probity of partners. Experimentalism helps by explaining how uncertainty can prompt exploration, and how regulation and contracting under uncertainty can be used to encourage joint learning by regulators and firms. In other words, experimentalism flourishes when uncertainty makes it impossible for principals – actors with a supposedly clear view of their own purposes and a comprehensive understanding of the means to achieve them – to effectively charge and supervise the agents they hire to help execute tasks (as neither principal nor agent alone knows precisely what is to be done), and must collaborate with them instead.

International law is traditionally the law of sovereign states; and sovereign states are conceptually the perfect principals, completely self-determining and answerable to no one. There is no room in traditional international law for experimentalism, or indeed, for any weakening of the control of principals – say the signatories to an international agreement – over the secretariat of the organization that administers the treaty.

But uncertainty is unsettling international relations no less than domestic affairs, and in areas like trade and climate change states are increasingly likely to acknowledge their interdependence, and hence the need for collaboration – at least insofar as geopolitical concerns allow recognition of vulnerability. The last chapter of *Fixing the Climate* describes an experimentalist regime in trade that complements emerging experimentalist collaboration in the exploration of green technologies at the sectoral level, and shows how some of the aspects of self-determination associated with sovereignty could be preserved in a new form in regime of intensified collaboration.

3. Can experimentalist governance complement market-based instruments?

Climate change and related policy issues exhibit two specific types of uncertainty. First, there is deep scientific uncertainty regarding climate sensitivity to greenhouse gas concentration in the atmosphere, encompassing aspects such as global

mean temperature evolution, the occurrence and intensity of extreme events, and the impact of climate change on different regions of the world, along with the extent of environmental damage in various sectors. Second, there is technological uncertainty concerning the future development and diffusion of clean technologies and energy sources. For example, we do not know which clean energy sources will be the most prevalent, how quickly businesses and consumers will adopt green technologies, and whether new green production paradigms will prevail.

In addition to these sources of uncertainty that make it difficult to design and implement effective climate mitigation policies, we must also consider macroeconomic and geopolitical uncertainties. These factors create challenges in balancing short- and long-term objectives during the green transition. For example, a deep recession or high energy price volatility can make it difficult for businesses to invest in long-term climate solutions and meet environmental regulations; on the other hand, in a context of geopolitical turmoil, there is a potential for countries to weaponize their energy interdependence by using energy exports as a tool of coercion. This could make it more difficult to cooperate on ambitious international climate action.

Despite these uncertainties surrounding climate change issues, we must aim to develop policy tools that reduce the risk of catastrophic climate change. It is therefore imperative that we take ambitious actions to reduce greenhouse gas emissions. While existing market-based instruments, such as carbon pricing through carbon taxes and emission trading systems, can contribute to emission reduction, their current limited coverage may not provide sufficient incentives for all sectors of the economy. On the other hand, experimentalist governance approaches offer flexibility and adaptability to uncertainty. However, they can be costly, demanding substantial investments in human capital and the capacity to govern complex processes.

What role can market-based instruments play within the framework of experimentalist governance? Can they serve as complementary tools, or should they be employed as supplementary measures when experimentalist governance approaches face challenges in effective implementation?

Answer: Market-based or price mechanisms work best in achieving static efficiency or the optimal use of available resources given existing constraints. An increase

in the price of a dirty fuel relative to a clean one is an unbeatably efficient way to encourage a switch to the clean heat source among power plants already or easily equipped to burn both. But prices are not much help in incentivizing dynamic efficiency or adjustment to much larger changes in context, often requiring redirection and therefore reinvention of technology. Prices are ineffective at inducing dynamic efficiency because the costs of changing technological trajectory are likely to be enormous relative to the cost of persisting on the familiar path. Development of successive generations of dirty technology lowers the cost of creating the next dirty generation, while the costs of developing a clean alternative start very high – the early days of innovation are often the riskiest – and get even higher as the performance of the established competitor improves. Indeed, the cost penalty that would have to be applied to the dirty alternative to induce a switch would be so high as to be tantamount to a prohibition – at which point it is the regulatory limit and not the market that is actually doing the work of incentivization. Note that the introduction of carbon taxes and other such price mechanisms has regularly been thought to induce technological innovation, but this expectation has been disappointed again and again.

But, as I hope is clear by now, experimentalist governance is designed precisely to encourage dynamic efficiency, especially innovation along an unfamiliar path, as in the current pursuit of clean technologies. It incentivizes innovation as a way of generating the information that regulators need to incrementally tighten standards; and it uses the tighter standards to spur the next round of competition for further improvement. Once alternatives are consolidated, and a stretch of the way forward is clear, price incentives can aggressively be used to accelerate diffusion and adaptation of the new technology. The Inflation Reduction Act in the US, which uses tax incentives to encourage investment in and purchase of green goods is a recent example.

4. Could regulatory sandboxes and corporate sustainability reporting obligations play a role in the experimentalist governance approach?

One of the main themes of the book *Fixing the Climate: Strategies for an Uncertain World* is the search for an efficient balance in the relationship between the

State and the market, where efficiency must be assessed concerning the goal of keeping climate change under control. In this research, the book's Authors focus on two essential courses of action. The first course of action consists of setting systems of cooperation and incentives by the State in favor of businesses that effectively pursue the aforementioned goal. The second course of action is to set a system of obligations, prohibitions, and other penalties to disincentivize or prevent businesses from undermining the achievement of the goal.

About these courses of action, it might be useful to consider, in addition, or as an alternative to the possible solutions identified by the Authors of the book, the solutions adopted or proposed in the European Union even concerning problems other than climate and environmental ones.

From the perspective of cooperation and incentives, it might make sense to consider the 'regulatory sandbox' tool, which the European Union has promoted or is promoting for (i) testing some AI or other high-tech solutions (such as innovative blockchain and other distributed ledger technologies), (ii) establishing a framework for data access and use and (iii) supporting start-ups or fintech. A regulatory sandbox is a regulatory tool that allows businesses to explore and experiment with new and innovative products, services, or businesses in a controlled real-world environment under an experimental legal regime and the supervision of a regulatory authority for a limited period of time. It also enables regulators to better understand the technology.

From the perspective of obligations, prohibitions, and sanctions, it is perhaps possible to include among the penalties in a broad sense the legal liabilities and reputational damage that may result from breaching rules on information or reporting obligations. From this perspective, it is worth considering the system of both legal obligations and reputational or market incentives and disincentives that the European Union has or will set forth by the rules on corporate sustainability reporting (so far the Non-Financial Reporting Directive and in the future the Corporate Sustainability Reporting Directive) and the Regulation on Sustainability Reporting in the Financial Services sector as well as by the Taxonomy Regulation and the related delegated regulations of the European Commission, which establish the technical screening criteria for determining whether an economic activity qualifies as environmentally sustainable for the purpose of establishing the degree of environmental sustainability of an investment.

Are regulatory sandboxes a kind of tool to be recommended as part of the experimentalist governance approach or, anyway, can they play a role, and which one, within a framework of experimentalist governance? Can rules on corporate sustainability reporting be sufficient as a penalty system within a framework of experimentalist governance, or can such rules serve only as complementary tools?

Answer: Regulatory sandboxes were invented as a device for testing the need for and definition of innovative regulatory systems to police the safety of innovative products and production processes. To my knowledge they have not played a great role in the green transition, nor do I expect that they will anytime soon. The reason is simply that they are not necessary. Existing regulatory systems are well equipped to incentivize the introduction of innovative technologies, and to monitor their operation. In *Fixing the Climate* we show how the California Air Resouces Board used technology-forcing regulation – fixing demanding targets for pollution reduction in consultation with the automobile industry; tightening those standards again, and again, as breakthroughs advance the frontier of development – to incentivize production of electric vehicles for the mass market. We frequently see that administrative agencies find the means for regulating radical innovation in ingenious use of their current toolbox, whether through waivers or provisional guidance, or in the case of the Water Framework Directive, also discussed in the book, soft law, a close cousin to guidance current in the EU. Indeed, regulation in food, safety pharmaceuticals and other domains in the EU typically has many of the neither top-down nor bottom-up features of experimentalism, so this approach might count as home-grown there. But if regulatory sandboxes prove their worth and are incorporated into the regulators' tool kit, there's no reason to think that they could not be used to test experimentalist solutions as well.

I will say a word – slightly disparaging I'm afraid – about systems for evaluating corporate.

5. By incentivizing firms to innovate, could the experimentalist governance approach unhinge the power of those who oppose the ecological transition?

A crucial aspect of the model and approach proposed in Sabel and Victor's volume is the ability to break vested interests by rewarding the creation of innovation rents. The decentralized experimentalist governance approach should, in other words, push firms to abandon 'positional rents' and pursue 'innovation rents'. Recent empirical studies suggest that Italy has a huge potential for green innovation (one of the highest in the world) and the mapping of firms with great potential does not always overlap with the mapping (including geographic mapping) of the currently most innovative firms.

How do you think the approach you propose aims to create opposing blocs of innovators and conservatives? Does this have the potential to unhinge the power of those who oppose the ecological transition, creating the strong 'cross-cutting alliances of innovation' that are lacking in our country between innovative firms, institutions, workers, and citizens as the *Forum Disuguaglianze e Diversità* suggests?

Answer: Experimentalism does indeed propose a system of incentives that creates 'innovation rents' – by promising pioneering firms that their products and processes will inform the regulatory standards applied to the whole sector – and reduces the 'positional rents' of incumbents, first by making it risky for them to cling to the status quo when competitors may be raising the standards, and second by eventually imposing draconian sanction or penalty defaults, such as exclusion from the market, on incorrigible laggards who are unable to adopt advances even when their feasibility and utility has been demonstrated. Should we be concerned that the same incentives will encourage formation of a counter bloc – a league of laggards, so to speak – who cooperate or collude to discourage the kind of innovation that would lead to tougher standards, and to persuade regulators to stick to the status quo even when improvements arguably become available?

While it is always important to inquire into the possible unintended effects of reform measures, I don't think we need to be too concerned by this worry here. The reason, of course, is certainly not that firms do not connive to defend the status quo,

and their positional rents, when it is to their interest. Obviously they do. But there is no need for incumbents to manipulate experimentalist incentives in order to organize this defense. They already have tried-and-true means for protecting the status quo, starting with the trade association. The purpose of such organizations is to represent the interest of the median member. In any industry there will be few capable innovators relative to a much larger number of firms that can adjust to innovation, but do not deliberately seek it, or are simply hanging on, resistant to change. The median voter in a typical trade association will therefore be anything but an advocate of bold innovation; on the contrary, trade associations should, and typically do, have a strong preference for maintaining the status quo. That, of course has been the experience of trade associations linked to the carbon economy the world over. The carbon interests, in other words, have long ago solved their collective action problems and organized aggressive protection of their interests. The hope is that experimentalist incentives will, in the case of the green transition and more generally, help those challenging the status quo to cooperate fruitfully with one another, both in accelerating innovation and adjusting regulation accordingly.

6. The problem of climate crisis raises both technological questions and social justice issues? What is the correct framing to account for growing economic inequalities and their harmful environmental impacts?

The great challenge before us is to align traditional economic growth with meeting several social objectives, including those related to climate mitigation, and preservation of biodiversity. Therefore, the key challenge is how to build an economic system that is structurally decoupled and disconnected from the detrimental effects on the environment (largely resulting from emissions of greenhouse gases). The approach on which the volume is based places a large confidence on the role of technological advances and efficiency improvements to help mitigate the overall ecological footprint of our global economic activity. Numerous studies, suggest that these impacts vary widely by wealth and income of individuals; in 2019, for instance, the work by Lucas Chancel published in *Nature Sustainability* in 2022 ('Global Carbon Inequality over 1990-2019')

indicated that nearly half (48%) of global emissions originated from the top 10 percent of emitters, whereas the bottom 50% accounted for merely 12%.

What response would you offer to those advocating for a shift beyond technological advancement, emphasizing a transition from an economy fostering excessive consumption among the affluent to one prioritizing fulfilling fundamental needs for everyone?

Answer: That half of global emissions are linked to the wealthiest 10% of the individuals in the world is another compelling reason to oppose the concentration of wealth and growing inequality that disfigures our societies. The finding should not be a surprise. Do we really expect an elite of rich oligarchs determined to maximize its control of government, democracy be damned, to exercise self-restraint in its personal affairs, merely for the benefit the planet?

As a practical matter though I don't think the finding should redirect our approach to climate change. As Chancel notes, the carbon footprint of the world's wealthiest is as large as it is chiefly because of their investments in carbon-intensive industries (which are presumably related to the size of their portfolios, rather than an express preference for carbon-related holdings). It is what they own, not the excesses of how they live, that makes them a special burden to the climate. In one sense this is good news because, as Chancel's work makes clear, it is fiendishly difficult to measure individual, consumption-related pollution, as would be necessary for taxing the profligates.

But while it is easier to measure investment-linked pollution than consumption-linked pollution, credibly measuring the former is proving so difficult as to be, at least for now, practically unworkable. Consider the rise and decline, if not fall, of the movement to rate firms on their regard for the environment, sustainability, and good governance (ESG). The idea is that the ratings will alert investors to a firm's carbon exposure, and thus to the risk that its assets could be stranded as a green transition proceeds. Add to this the assumption that universal owners – firms like Fidelity and Blackrock that together control some 20% of the equity in all major corporations – will sacrifice a few (oil company) holdings to protect the value of the whole portfolio against the risk of climate change, and it can seem that an investment-ratings system based on ESG is the key to enlisting the financial markets (and not quite incidentally, the rich

people that control them) into the service of environmental renewal.

That is the theory. In reality, it has proved extremely difficult to arrive at consensus at every stage of the process of standard setting from getting credible, ground-level information about pollution in the firm and its suppliers, to agreeing on thresholds for levels in the rating scheme, to defining the commitments to improvement that firms must make to improve their standing. In many cases, further investigation has uncovered new ambiguities, not clarified existing ones. Opinions will vary as to the prospects of this initiative. But I doubt that anyone thinks that there is currently a robust system for the evaluation the ESG performance of firms by portfolio investors. In the absence of such a system it is hard to see how tax authorities can credibly penalize the wealthy for their pollution-linked holdings.

And why bother? *Fixing the Climate* sketches an experimentalist regulatory scheme for inducing firms to reduce pollution and embrace the green transition. If that, or some alternative approach, succeeds, the carbon footprint of the wealthiest will be reduced because the firms in their portfolios will be polluting less. In that case the rest of us, constrained in our own polluting as much by our means as much as by our morals, won't have the satisfaction of knowing that profligate polluters are paying a price for their selfishness. And when immoral reckoning comes, as I trust it will, I suspect the first charge against the oligarchs will be subversion of democracy, followed by outrage at damage done by their attack on public goods, starting with the climate.

In the meantime, however, I think focusing on the wealthiest polluters is a distraction, though a morally comprehensible one, from the urgent fight to lower pollution generally.