Will Capitalism Save the World?

by Dominique Guellec

Philippe Aghion, Céline Antonin and Simon Bunel believe that only technological innovation will allow humanity to meet the social and environmental challenges it faces today. However, capitalism and the "power of creative destruction" come up against the complexity of microeconomic decisions.

Reviewed: Philippe Aghion, Céline Antonin, Simon Bunel, *The Power of Creative Destruction.* Harvard University Press, 2021, 400 pp., €18.95.

At a time when the climate crisis is worsening, inequalities are rising and democracy is weakening, many point to capitalism as the primary, if not sole, culprit for all these ills. They claim that the solution lies in a collectivization of economic activities, a radical redistribution of income, "degrowth" focused on ecology, and a return to "traditional" technologies that are more respectful of humans and the environment: in other words, moving away from capitalism and growth in order to restore a lost balance.

In contrast to this vision, Philippe Aghion, Céline Antonin and Simon Bunel see technological progress and thus innovation – rather than a return to tradition – as the solution to all our problems, and they maintain that capitalism alone can bring us the necessary innovation. A capitalism that is guided and regulated by the State, of course, because "capitalism is a spirited horse" (p. 395) whose immense energy also causes problems if it is not channeled properly.

The Schumpeterian model

They base their diagnosis on a particular vision of capitalism, the 'Schumpeterian model', named after the great Austrian economist of the first half of the 20th century. This model, developed over more than three decades by Philippe Aghion, rests on three pillars (p. 50): "1) growth comes from the progressive accumulation of knowledge; every innovation uses the knowledge contained in preceding innovations (...); 2) [innovation] depend[s] on the institutional environment, and in particular the degree of protection of intellectual property rights; 3) innovation destroys existing rents, and consequently requires a competitive environment so that innovative new firms can continuously enter."

The book uses this key to open a large number of doors: growth is a cross-cutting, emerging phenomenon that both reflects and determines every aspect of the economy; analyzing growth therefore implies studying all these aspects to which it is linked: financial structure, employment, income inequality, trade, public policy, etc. To this end, the book draws mainly on the numerous academic articles co-authored by Philippe Aghion, covering a wide range of subjects from the most abstract theory (his early articles of the 1980s on endogenous growth theories) to more recent and more often empirical analyses.

The ability of capitalism to foster innovation is due to "creative destruction". This term is associated with Schumpeter and refers to the process by which new and superior products and processes replace their predecessors, thus ensuring continuous progress. Of course, this process generates costs (the reclassification of assets associated with old products) and creates losers (workers or entrepreneurs involved in making these products); for this reason, it has been slowed down throughout history by the appropriate institutions such as trade guilds, or monarchs protecting particular interests. Indeed, it takes a strong political will to resist incumbent interests, which are usually more powerful than the emerging interests of innovators. That is why it is so important today to fight corruption and lobbying, which tend to defend incumbent interests against those of innovators. Hence also the centrality of competition policy. The fact that the authors repeatedly focus on this issue suggests that they probably consider it to be the most important (but not the only) policy to support growth.

One mechanism by which competition promotes innovation is emulation: when new firms enter a market, bringing with them the most advanced technologies, it motivates incumbents to innovate in turn, rather than risk seeing their profits

evaporate. In some cases, however, there can be too much competition, and this can be detrimental to innovation. This is especially true when incumbents are far from the technology frontier, i.e. from the most advanced and most productive techniques. In these circumstances, the arrival of new, highly productive firms at the frontier risks discouraging those who have already fallen behind, who thus lose all hope of catching up and, in a sense, they give up. Overall, however, innovation is associated with competition.

Do innovation and growth foster inequality? Let us recall Thomas Piketty's resounding 'no', expressed in his equation g-r>0, meaning that when the growth rate of the economy (g) exceeds the interest rate (r) then inequality decreases, while the opposite is true when the interest rate exceeds the growth rate: interest is in fact the measure of the income of capitalists, who are the wealthiest, and when r>g their share of national income automatically increases. Our authors approach the question differently, from the point of view of Schumpeterian rent. In the Schumpeterian framework, innovation is driven by the rent earned by the innovator – the difference between the price of the innovation and its cost. The expected rent must be high enough to encourage a large number of innovators. The rent derived from innovation thus lifts its holder into the wealthy categories – the famous '1%' – and an increase in innovation and thus in rent therefore increases inequality 'at the top'. This 'good inequality' (a source of product growth) contrasts with 'bad inequality', which is based on anti-competitive rents, usually made possible by lobbying – an inequality that is similar to negative redistribution and therefore constitutes a form of exploitation. Another positive effect of innovation in this context is the creation of jobs in innovative firms, where low-skilled workers receive higher wages than in other firms. This mechanism, among other things, explains why overall inequality, as measured by the Gini index, does not increase in line with innovation (as opposed to inequality at the top). What policy implications does this analysis have? Innovation requires high rents. Indiscriminate taxation of high incomes can therefore kill off the incentive to innovate. Taxing income from rent, on the other hand, cannot harm growth and would benefit low-income earners through redistribution.

One form of collateral damage from creative destruction is job mobility. When one product replaces another, or when one firm displaces another, the volume of employment may not change but the jobs that appear differ from those that disappear in terms of skills, location and other factors, and the workers who are victims of this destruction will not immediately find replacement jobs: creative destruction implies frictional unemployment, which is a recognized source of material and psychological

suffering. How can this problem be contained without stopping the processes of creative destruction themselves? The authors find an answer in the Danish model of "flexicurity", a system that does not protect jobs (dismissal is easy), but does support unemployed workers in their search for a new job. This system has proved its effectiveness in the face of frictional unemployment – but what about structural, long-term unemployment, concentrated in entire regions (such as northern France, Birmingham, Baltimore, etc.)? These situations illustrate how difficult it is for human communities, for investment and therefore for innovation, to recover from large-scale destruction that affects not just a few activities but the very foundation of the economic and social life of an entire region. The appropriate policies to restart the engine of creation where it has stalled have not yet been identified.

"Green innovation" is about providing solutions to the environmental crisis, and this issue illustrates both the power and the blindness of capitalism. No one doubts that the industrial technologies invented and implemented over the past two centuries have caused widespread environmental damage, especially through carbon emissions that have driven climate change. The authors believe that the same ingenuity that made these technologies possible could be channeled into green technologies, through appropriate policies that combine price action (through a "carbon tax") and subsidies for green research and development. This would put firms in a situation in which research into green technologies becomes more profitable than research into polluting technologies: capitalism is certainly part of the environmental problem, but it is also part of the solution, making it possible to reconcile growth and respect for the environment.

A research agenda beyond macroeconomics

These topics among many others are developed with great clarity and a line of argument that many economists will find convincing. This book by Philippe Aghion and his co-authors also invites further research on issues that it only partially resolves.

Taken together, the policy prescriptions presented in the book constitute a genuine policy agenda for innovation and growth. Nevertheless, the proposals are very general and have some blind spots and contradictions. In political matters as elsewhere, and in the words of Nietzsche, "the devil is in the details". One can, of course, recommend exempting income from innovation and overtaxing income from

undue rents: but how is it possible in practice to distinguish between these two types of income? Take, for example, Jeff Bezos, the founder and former CEO of Amazon, who is certainly an outstanding innovator but also the beneficiary of a huge monopoly rent. How can these two factors be separated? Competition is another complex area: the third principle of Schumpeter's theory makes competition a necessary condition for innovation; but the second principle recognizes the need for intellectual property rights for innovation. However, and this is a recurring theme in the economic and legal literature, intellectual property rights and market competition do not usually coexist easily. By definition, a patent is an exclusive right to use an invention, and therefore confers a monopoly on its holder. There is clearly a policy dilemma here, which in practice is negotiated on a case-by-case basis by the relevant authorities. In any case, there is no ideal, optimal solution and no simple policy prescription that can resolve this contradiction. A third example is tax incentives for R&D. The authors criticize the R&D tax credit available in France because it is "biased in favor of large firms" (p. 245). They suggest emulating the British system, which sets thresholds that are contingent on the size of the firm. However, the book has already warned us about threshold effects in business support, which "discourage innovation in firms that are close to that threshold" (p. 72). How can a particular process be applied to large firms without creating threshold effects? Thus, while the macroeconomic approach is persuasive when it comes to defining the objectives and general principles of public action, which the book does very well, it is not sufficient to resolve the more specific and practical problems that can sometimes constitute major obstacles to the application of these principles.

Studying these more specific problems would require going beyond the macroeconomic approach and mobilizing lessons from other branches of economics, such as the economics of science, intellectual property, and geography. For example, the major questions in science policy today are: How can public R&D be better aligned with the interests of society and the economy while protecting basic research, which is necessarily free? What can be done to encourage more 'disruptive' research over incremental research? What is the right balance between cooperation and competition between universities? Answering these questions requires the use of models that are more specific to the field in question, which macroeconomics does not have. The same is true of intellectual property rights: although they are mentioned repeatedly, the book does not offer any specific prescriptions, especially with regard to improving the synergies between rights and competition. This is a key question for the future of innovation in capitalism, but one to which the tools of macroeconomics are not immediately applicable. To broaden their analyses and policy messages, the authors

will have to rely more on other economic disciplines that study innovation in its specific dimensions.

Economics is not the only discipline that focuses on these questions, and it is not always the best equipped to answer them. This is especially true when the signals and incentives are not monetary in nature. The authors acknowledge this, for example, in the area of basic R&D: money is not what motivates individuals, who value "academic freedom" as the best way to advance knowledge. However, when it comes to analyzing the means by which the decision-maker ("the principal") can influence the behavior of the researcher ("the agent"), the proposed model includes only monetary levers (p. 285), and thus does not respond to the authors' previous analyses. Hopefully, the authors' creative ingenuity will go on to address this limitation of the Schumpeterian paradigm and include non-monetary factors in the model. This will be required in order to carry out in-depth analyses of the institutional complex, both public and private, that structures the world of R&D&i, the ministries, agencies, universities, laboratories, large firms, start-ups, etc., whose importance the authors recognize but do not fully analyze, often reduced to the motivations of individuals, and thus leaving out the complexity of interactions.

It would also be interesting to read what Schumpeterian economics would have to say about what is perhaps the greatest geopolitical question of the 21st century: Will China match or even surpass the West in its capacity for innovation? The answer to this question will determine the global balance of power. And this question is dealt with in the book, in relation to the link between democracy and innovation. The authors highlight the fact that during the 20th century, all major innovations occurred in democratic countries. The authors argue that this is due to the need for trial and error and diversity in order to generate innovation – qualities that are not well tolerated in a political dictatorship. The conclusion is that China should not be innovative, and yet all available indicators show that it is, in technology, science, and even in lifestyle. It certainly has not yet reached the level of the most advanced countries, but it is not far behind, and it remains to be seen whether its political system will block it before it reaches the frontier. China's leaders are well aware of this, and they are showing great ingenuity in reconciling the monopoly of political power with competition in economic matters. It is difficult to predict today whether they will succeed for much longer, especially since they have an argument that resonates with the themes of the book: in their view, only the power of politics can harness the energy of capitalism and direct it toward what they see as the public good rather than creating all the 'public evils' that the book recognizes.

Continuing the debate

This book makes the most convincing case that macroeconomics has to offer on this subject: it is optimistic but nuanced and reasonable, and in the current rather gloomy general context of fashionable 'collapsologies', this book puts the public debate back on a reflective footing. The numerous graphs, figures and examples make the text as a whole lively and credible. However, there is still some way to go before the theory can form the basis of a more operational policy agenda and better integrate the non-monetary dimensions of the phenomena studied: the authors of this book are in a strong position to pursue this research.

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